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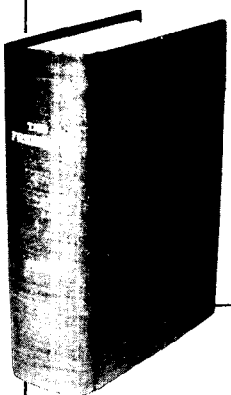

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PAUL L. POIROT

# THE LAWS AND THEIR USES

ONE MAY DEPLORE the harm a person does to his own mind and body through addiction to drugs and assorted "pleasures." But a public problem arises when the addict turns to crime and the injury of others in the attempt to support his expensive habit.

Especially alarming is the growing number of teen-agers and even younger children hooked on drugs. More and more one hears the demand that schools "get busy and do something about the drug problem among students." The proposal, in effect, is to convert the public schools into reformatories.

This call for further help from the welfare state illustrates an addiction far more widespread and serious than the combined evils of narcotics, tobacco, wine, women, and song. The "something-for-nothing" habit in the United States is now taking from citizens in taxes more than two-fifths of their annual earnings. But that is by no means the full cost. The time and energy spent by government in regulating the lives of peaceful citizens is time and energy that cannot be used to suppress and control criminals and carry out essential functions of government. Whenever government becomes overextended into every aspect of business and private affairs, it inevitably invites, encourages, and tolerates crime and corruption.

So the citizens face these immeasurable hazards and costs in addition to the direct burden of taxes. All told, the people of the wealthiest industrial nation in the history of the world are spending approximately half of their earnings to support the hallucination of something for nothing. Dreaming up problems for the government to solve is a debilitating and costly habit.

The industrialization of an econ-

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omy is a process of specialization and division of labor and voluntary exchange, each participant devoting his talents and resources in a restricted area of his choice and depending on trade with other specialists to satisfy his other needs. Though government is necessary for policing the market and protecting the lives and property of peaceful traders, government basically is a form of coercion as distinguished from the peaceful production and voluntary exchange of goods and services in the market.

In other words, the market does not function coercively; goods and services are traded there in peace on a take-it-or-leave-it basis. Coercion and violence are not marketable items; rather, they disrupt and defeat the purposes of trade. If peaceful traders need protection from crooks and robbers, this is a "service" that cannot be produced and consumed or bought and sold in market fashion. The market recognizes neither dictators nor customers who want to be coerced. There is no market way of handling the supply of coercion or the demand for it. The governmental protection and policing of society is a nonmarket operation. It is an outside force that may be essential to the optimum functioning of the market, but a force that must be understood and used sparingly lest it plunder and destroy those who would trade in peace.

***The Policeman's Lot . . .***

If I appoint a guard and authorize his use of force to defend me against unwarranted acts of coercion by others, then it would seem ill-advised on my part to expect the guard to use his coercive powers to:

feed me
clothe me
bring me water
build my house
clean up my garbage
provide my medical care
furnish my recreational facilities
save for my retirement
carry my messages
transport me hither and yon
control my working conditions
regulate my business activities
invent new products for me
conduct my research
discover truth for me
train me for employment
pay me when unemployed
teach me and my family to read and write
take care of my children
improve my morals
ration my consumption of alcohol, drugs, tobacco
censor my news, literature, entertainment
limit my spending

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support my church
administer my charities
cultivate foreign friends
for me
screen out my competitors
hedge me from neighbors
take me to the moon
et cetera, et cetera, et cetera

### *Tom, Dick, and Harry*

Tom, Dick, and Harry are agreed that government is organized coercive power and that government is necessary to the orderly functioning of society. They differ as to what is the proper role of the government.

Tom believes government's coercive powers should be strictly limited to protecting the life and property of each peaceful person against foreign or domestic infringement or aggression – to keep the peace and insure that men behave justly toward one another. Beyond that, he would look to the market processes of peaceful production and voluntary exchange for the satisfaction of wants, each person's ownership and command of scarce resources being in proportion to his capacity to earn them through service to others.

Dick also wants government to keep the peace, but thinks this may best be accomplished by stamping out any resistance to the wishes of the ruling majority. As Dick sees it, the majority's shifting standards of right or wrong should prevail over any individual's claim to life, liberty, or property.

Harry is confused. He wants the government to keep the peace and he understands some of the reasons Tom offers for respecting and upholding the freedom of choice of each individual and defending his life and property. But Harry also shares Dick's desire to tax the rich and give to the poor. And he expects government to regulate and control, if not actively manage and operate, vast business enterprises supplying goods and services that "everybody needs."

So, in our "Small Society," Tom wants limited government and Dick wants unlimited government; Harry, who agrees with his friends, holds the balance of power.

If Tom adheres to his principles of defending his life and property with a minimum of coercion against others, he can appeal to Harry's sense of justice but not force Harry to side with Tom and against Dick. Dick, on the other hand, is not deterred by principle from the use of threat or force, as well as argument, to impose his socialistic government upon Tom and Harry. The nature and extent of government control of this society is largely up to Harry and depends upon which way he happens to waver at the time.

The Harrys – for there are

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many of them and they always outnumber the hard-core Toms and Dicks in any society – are rarely conscious of any principles of action. They merely react to this or that urge or pressure. Yet, by their reactions, they plot the course of government. In a huff of grievances against an inept King George, the Harrys may let Tom constitute a government of strictly limited powers. That is, they do not then react against the principles for which Tom stands. But without understanding or conviction, the Harrys of another day may just as easily swing behind Dick and his subtle arguments for expanding the government into a full-blown welfare state, riding roughshod over Tom and his principles. And about all Tom can do under the circumstances is to tolerate the trend and "render unto Caesar." Not until Caesar's oppression moves the Harrys to rebel can they again hear the sober admonitions to repeal special privileges and cut government back to a more limited defensive role.

So Tom and Dick have their respective principles of government. But the government, in fact, is always a compromise; it's what the Harrys, by their reactions, say it is.

Because of its coercive nature, government can be a dangerous servant; it can compel productive persons to stop whatever they may be doing and divert their time and energy instead toward the things said by the effective governing majority to be more important. Government can protect life and property against aggression; or, it can take from some to give to others. But these are contradictory behaviors; the one more or less precludes or negates the other. How clearly one perceives that basic contradiction largely determines his ideal of the proper role of government.

A person of foresight undoubtedly will see that government ought to be strictly limited to a negative defensive role so as to be the least possible burden upon the constructive and peaceful pursuits of individuals. It is similar to a drug that may be highly effective and appropriate as treatment of a disease. But those who do not foresee the potential tyranny may ask that government apply its coercive powers to all sorts of reform measures and charities and services to consumers that otherwise would be left to voluntary cooperation in the market. This use of the drug in a flight from reality becomes an addiction that weakens and destroys the individual.

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CLARENCE B. CARSON

# Throttling the Railroads

## 4 The Nature of Railroading

THERE WERE TWO basic charges against the railroads which promoted the increasing government regulation and control over the years. One was that they *discriminated* among their customers, particularly among shippers, and that this discrimination resulted in unjust rates. Specifically, critics claimed that the railroads favored those making large shipments over those making small ones, that they charged more for some short hauls than they did for long ones, that they gave preferential rates to some cities and denied them to others, that they gave rebates to strategically situated shippers, and that they gave free passes to influential persons to ride passenger trains. These practices were said to be unjust because they meant that small shippers, those living in cities or towns without preferential rates, farmers, and people without influence were not only paying their own way but were also subsidizing favored customers.

The second charge against the railroads was that *competition* among them was *imperfect*. Some locations were served by several railroads and might have, in addition, water transport available, while others would be served by only one railroad. Those who were served by competing lines benefited from lower rates, while

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those with only one line between points were charged what the traffic would bear. Of course, this was only the simplest level of the charge about competition. Reformers have actually been quite ambivalent toward it; if it does not exist, they picture the customer at the mercy of a single company; if it does exist, they are apt to describe with horror the competitive practices. The legislation fostered over the years reflects the ambivalence of the reformers toward competition. At any rate, they charged that competing railroads formed pools to divide up the freight or passengers or receipts, as the case might be, thus reducing or eliminating the benefits from competition. Or, they charged that the railroads cut each other's throat when they competed. The effect of the latter was supposed to be that they charged very low rates for competitive traffic and made up their losses by much higher rates for noncompetitive traffic. Pooling, of course, raised the monopoly bugaboo – that monopoly conditions would prevail generally and that everyone would have to pay what the traffic would bear.

In sum, a picture was drawn that made government regulation of rates and control over service appear necessary if justice were to prevail.

### *The Facts Were Irrelevant*

Theoretically, the charges might be dismissed as irrelevant and immaterial. The railroads were the private property of their owners in almost all cases; as such, the owners should be free to discriminate against whom they would and charge whatever rates suited them and provide such services as pleased them. For good or ill, however, it is this position that is irrelevant. It is historically irrelevant because the railroads have been and are regulated and controlled. It is irrelevant in America because we have a variety of popular government and, if enough of the people can be persuaded that injustice exists, measures will be taken to correct it. In any case, such has happened. Thus, the question of the justice of railroad practices must be tackled head on. This will lead us to an examination of the economics of railroading which will, in turn, clarify the issues which prompted regulation and show why the regulation, when it came, produced the results that it did.

Let it be stipulated, at the outset, that the railroads did sometimes engage in the practices which their critics described. That is, they sometimes charged more for a short haul than a long haul, gave rebates, gave preferential rates to large shippers, favored

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some shipping points over others, formed pools, gave out free passes, and so forth. Whether such practices worked injustices upon the customers of the railroads is another matter.

#### *Justice?*

To be just means, so far as I can make out, to give to each man his due. In economic terms, it means that a man should have what he has earned or what has been given him by someone who earned it. So long as the railroads provided the service for which they were paid and at the rate agreed upon with each party to a contract, there would appear to be no further question of justice at issue. That is, the practices charged against the railroads could be dismissed simply as involving no instance of violation of contract. If they had, anyone unjustly treated by violation of contract would have recourse to the courts. No new laws were needed to provide such justice.

What the reformers have sought, however, has not been justice. It is sometimes called distributive justice, but it should be called, instead, *equality*. The laws passed restricting the railroads have been animated by the notion that all shippers and passengers of the railroads should be treated equally. They seem to think that each customer of the roads should be charged what it costs to provide the service, plus a "reasonable" profit. To calculate such a charge, it should be necessary only to figure how much it costs to transport a given unit a certain distance and then apportion this among the customers according to the number of units and distance shipped.

Of course, no such calculation can be made. More precisely, if such a calculation were made it would spread disaster in every direction when applied. It could only be an *average* cost per-unit per-distance which would only by sheer luck be the actual cost of shipping one unit a given distance. If such an average cost were then prescribed, it might be expected to bankrupt every railroad in the country not only because the costs of providing rail service vary from one line to another and on the same line but also because they run counter to the whole purpose of the railroad. This is why the government programs have had such a deleterious effect; not because the programs have ever involved so simplistic an approach as the above but because they have worked off modifications of it which ignored the nature of the services railroads perform.

First, it must be made clear who the railroads ultimately serve.

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Just as in so many other businesses, the railroads serve consumers. Who is the consumer in this case? In the case of goods, the consumer is the person who finally buys and uses them. Though the railroads do serve shippers, they do so only as an auxiliary function to serving the ultimate consumer. In the case of passengers, the consumer is directly the person who is traveling but it would be appropriate to describe those to whom he travels as being, wittingly or unwittingly, the ultimate consumers of this service.

### *The Right Place, the Right Time*

In technical terms, what the railroads add is *place* value. In this respect, they are like all other means of transportation. The purpose of transportation is to bring goods and people together and to do so as quickly and inexpensively as possible. Ideally, a transportation system would make available at one's doorstep goods and people from all over the world upon command, in an instant, and without differential charge based on distance transported. As consumers, this is what we desire from transport. A student of the railroads described the service they provide in this way some time ago: "The sole reason why man uses the railway is that it is the most effective agency at his command for the annihilation of space and distance, and it is to be hoped that in the course of time the railway or some other means of transportation will become so efficient as actually to annihilate distance. The one thing that distinguishes the American railway managers from the railway managers of the rest of the world is the success with which they have relieved cities or places of production of disadvantages resulting from their location."[1]

If railroads were to establish rates upon the basis of costs per-unit per-distance, the tendency would be to deny service to consumers which they are set up to provide and to do themselves out of most of their traffic. Producers at more distant points would have to pay more than those nearer by to get their produce to market, and if the distance were great the cost would become prohibitive. This is not what the consumer – that is, all of us – wants. We want as wide a selection of goods and services as possible. The crucial fact is that the railroads can operate effectively only by providing them for us. Hence, the interest of the consumer is identical with that of the railroads. Some local producers, in a short-sighted way, have believed their

[1] Hugo R. Meyer, *Government Regulation of Railway Rates* (New York: Macmillan, 1906), p. 361.

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interests to be at odds with the interests of the railroads – hence, with consumers – and have tried to prevent the railroads from providing transport from distant points inexpensively.

### *The Economics of Railroading: the Nature of Competition*

There are two basic reasons for the identity of interest between the railroad and the ultimate consumer: the particular exigencies of railroading and the nature of competition. Let us examine first the economics of railroading.

Railroads have unusually *high fixed costs,* more, as a rule, than any other means of transport, and probably as much or more than any other industry. Their fixed costs include such items as laying and maintaining tracks, building and keeping up passenger stations and freight depots, paying for switch yards, rights-of-way, bridges and crossings, rolling stock, safety devices, sidings, and such like. They are unusual, in America at any rate, in that they alone among the means of transport maintain the thoroughfares on which they travel. Wagons, boats, trucks, and planes rarely provide their own thoroughfares; waterways and highways are usually provided at the public expense, though some charge may be made for their use. Railroads usually even own and operate their traffic signals, something unheard of in other large operations. Hence, their costs in preparation for operation are very high.

On the other hand, railroads have unusually *low variable costs* compared with other means of transport. That is, railroads can increase the amount of service provided with declining costs for each additional unit to a point much beyond what is common in other businesses. A train of fifty cars, say, can be hauled for very little more than one of ten cars. Moreover, the cost per mile traveled declines precipitately as the distance is extended, since most of the fixed cost is in loading, unloading, and related activities. To put it another way, given the fixed costs and the fact that a train has been made up, each car added and each mile traveled costs less than the one before it. Railroad practices can be correctly understood only in this context. Railroads have tremendous incentive to increase the length of their trains, the frequency of them, and distance traveled. By so doing, they are enabled to recover their high fixed costs, take advantage of low variable costs, and increase their income. When they operate in this fashion, they are serving the consumer in the optimum manner, for he wants goods brought to

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him from great distances at low costs.

But, it may be objected, could the railroads not greatly increase their profits by basing their rates on per-unit per-distance traveled? Of course, they could in the abstract; that is, if the volume of freight would remain the same for the higher rates that it would for diminishing rates, they would have every reason to charge those at greater distances proportionally higher rates. The only thing is that the volume would not remain the same, and any railroad management so shortsighted as to suppose that it would, might be expected to bankrupt the company in short order. This brings us to the second reason for the identity of interest between railroad and consumer: competition.

### *Aspects of Competition*

Few things can have been more misunderstood than the nature of the competition with which railroads have been confronted. It is quite common to treat the matter as if competition only existed – prior to automotive and aeronautical transport – when two or more railroads connected with the same points. This is only one kind of competition and in many instances may be less important than others. One writer described the kinds of competition railroads encountered in this way: "competition between carriers by rail, competition with rail and water lines, competition with water lines, competition between markets, or competition of product with product."[2] To which it might be added that passenger traffic is in competition with such other modes of transportation as existed plus alternative uses of money.

Some examples may help to clarify the kinds of competition involved. Any given locale may be in competition with other locales for a particular market. For example, one might consider the market for grapefruit in Baltimore, Maryland. Domestic grapefruit might be brought to Baltimore from Florida, from Texas, or from California. Florida is nearer than Texas to Baltimore, and both are nearer than California. Suppose there were only one railroad from California to Baltimore. It still could not charge whatever price suited it for hauling grapefruit. It would have to meet the rates of rail and ship lines from Florida and Texas. The same would be true, it must be clear, whether there were one or twenty lines from California to Baltimore.

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[2] Henry Fink, *Regulation of Railway Rates on Interstate Freight Traffic* (New York: The Evening Post Job Printing Office, 1905), pp. 9-10.

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***Competing for Markets***

The competition for markets is broader and more extensive than the above would indicate. The following is a description of it regarding other products and markets:

> This competition is national and international in scope; not only does the wheat of Dakota compete in Chicago with that of Kansas and Nebraska, but the wheat of the United States competes in Liverpool with that of Canada, Russia, Argentine Republic and India. . . . The Pennsylvania and Virginia coal competes in New England with that from Nova Scotia; the various coal fields in the Alleghenies compete with each other; the Southern iron and Northern iron are competitors. . . .[3]

This competition for market applies even when only one railroad is involved. Distance from the market must be largely negated as a factor in charges for transportation if those farther from the market are to compete with those nearer to the market. For example, if farmers near Poughkeepsie had to pay twice as much as those near Peekskill, if those near Albany four times as much as those from Poughkeepsie, those near Syracuse three times as much as those from Albany, to get milk delivered by railroad to New York City, the chances are good that milk from distant points would never have reached New York City. On the contrary, rates must be approximately the same from all these places to the destination. The railroads want to haul freight, and in order to make distant commodities competitive with those nearby, they will charge less on many occasions than would seem to be warranted by the distance.

Competition between products or services must also be taken into consideration. Not only are human wants extensive but also the means for gratifying them are numerous and diverse. The number of foods which, either singly or in combination with a few others, will sustain life and health are so many as to be unnumbered. There are numerous fibers from which to make clothes, a great variety of building materials, a considerable number of fuels, and so on. If the price of any one of these is raised significantly, alternative means are likely to be used to gratify the want. For example, if oranges become more expensive, apples may be substituted. The consumption of commodities for which the demand is elastic will decline as the price rises, particularly if it rises in proportion to

[3] Charles S. Langsroth, *Railroad Cooperation in the United States* (Philadelphia: University of Pennsylvania, 1899), p. 85.

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the prices of substitutes. This point is appropriate for passenger fares as well as freight rates. Whether one takes a trip, buys some stock, builds a new room on his house, purchases some new contraption, or what not, will be determined in part by relative cost as well as desire. Reduce the cost of travel, and the number of travelers and trips may be expected to increase, other things being equal.

All sorts of economies come into play to check the desire of railroad operators to arbitrarily set charges. It might be supposed, for example, that those within a community served by only one line would be at the mercy of the railroads on incoming freight. It does not follow. "Backhauling," as it is called, is most important to railroads. The incentive is to haul loaded cars in both directions, and in order to do that, charges must be kept sufficiently low for goods coming in as well as those going out.

### *The Incentives to Serve*

It should be clear from the above exposition, then, that from the nature of railroading and the competition encountered the railroads had great incentive to provide extensive service, reduce the cost of transport, and serve the consumer in the best possible manner for the lowest practical price. By so doing, they would be most likely to recover their fixed costs and to profit from their low variable costs. Any move toward higher charges and the reduction of services would tend to reduce traffic, make it more difficult to meet costs, and work to the disadvantage of the railroads. The historical record tends to substantiate what theory would predict. So long as the railroads were free to do so, they did extend their facilities, improve service, reduce costs, and lower their rates.

Most of the charges against the railroads of discriminating among customers as reasons for regulation are predicated on misconstructions of the nature and purpose of railroading. Of course, railroads did and do discriminate among their customers. One writer put it this way some time ago:

> Discrimination is the underlying principle of all railroad tariffs, whether they have been established by State railroad commissioners, or by the railroads themselves. This is so necessarily. Were it otherwise, railroads could not be successfully operated. Instead of promoting and facilitating commerce, they would hamper and obstruct it, and cause great injury to the public.[4]

Some of the reasons for this should now be easy to see. They discriminated between those dis-

[4] Fink, *op. cit.*, pp. 102-03.

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tant from the market and those nearer by in order to make the more distant products competitive, between large shipping centers and small intermediate points because of low variable costs, between one product and another depending upon the particular exigencies, between those making large shipments and those making small ones because of various economies involved, and so on.

It was alleged that these discriminatory practices obliged small shippers from small communities not served by competitive lines to pay not only their own way but a part of that of those more favorably located as well. The way to check on this would be to see how much it would cost to provide service to small communities, intermediate points, and those near to market without the other traffic. It would not be difficult to see that in view of the high fixed costs, the low variable costs, and the income from large shipments over a long distance, the railroads would have to charge much more for local service than they did. There is some historical evidence to support this. As government has tried to reduce such discriminations by regulation, the railroads have consistently reduced their local service and discouraged small shipments.

Railroads also discriminated by giving free passes to some people. This practice should be considered as a not very subtle effort at public relations by the railroads which backfired. Free passes were frequently granted to clergymen, newspapermen, politicians, and anyone else in a strategic position to render favorable judgments on them. In effect, the railroads were lobbying to try to prevent punitive action by governments. Not only did the tactic fail but it became another source of discontent with the railroads. In this case, as in so many others, reformers turned the means by which a business attempted to defend itself from government interference into justification for further regulation.

### *Discrimination and Competition*

Rebating was a kind of discrimination; but it should be discussed in connection with competition, to which we may now turn for an examination of the charges about it. Why would the railroads give rebates to certain shippers? Why would they not, instead, simply lower the charge? In the absence of government regulation, they could have charged any shipper whatever rate was mutually agreeable.

In the main, what led to rebating before 1887 – the year when the Interstate Commerce Act was

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passed – was the practice known as pooling. Pooling was a device got up by the railroads in a particular area to establish rates between competitive points and to avoid price competition among lines in direct competition with one another. There were two sorts of pools: those in which rates were agreed upon and the traffic divided according to some ratio among the railroads, and those in which receipts were divided among the roads according to some formula. Rebates were means by which railroads secretly competed with one another within a pool, though if the agreement called for a pooling of receipts the incentive to do this was greatly reduced.

Pools were not illegal according to the common law, which in the absence of positive legislation would generally prevail in the United States. The courts would not break them up; neither, however, would they enforce the agreements. Pools had no more standing before the law than, say, did gambling debts. Pools were usually short-lived arrangements, but competing railroads were continually trying to reorganize them after they broke up.

Why did railroad men organize pools? The answer is simple: in order to avoid the requirements of competition. Why did railroad men give rebates and withdraw from pools? The answer again is simple: in order to compete. To resolve this apparent contradiction, yet another facet of competition must be examined along with the historical conditions within which the railroads were operating.

### *Let Others Compete*

There is one side of competition that rarely draws comment. It is this: probably no one likes competition in his own particular undertaking. On the other hand, almost anyone can be convinced of the desirability for others to compete. It is easy enough to understand why this is so. To compete means to offer as good or better services than others, to become and remain efficient, to stay abreast of the competitor's methods and technology, and to lose out when others can do the job better or less expensively. Interest groups usually arise from one of two (or both) reasons: to protect themselves from government, or to get some advantage from government. One of the advantages – the central one – sought from government – is to be relieved of the necessity of competition.

Reformers were not the only ones ambivalent about competition; railroad men were, too. There is a considerable literature in the late nineteenth and early

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twentieth centuries, some portion of it in sympathy with the railroaders, detailing the "horrors" of competition and calling for government action to abate it. Among the horrors attributed to competition were rebating, rate wars, bankruptcies, and general instability. What many railroad men would have liked would have been for the government to enforce their pooling agreements as contracts, that pools be legalized. Much evidence was gathered which purported to prove that pools did not result in higher rates. Yet, every rebate granted tended to prove the opposite.

### *Mistaking Symptom for Cause*

The facts used to support the claims about the horrors of competition were quite valid. There were rate wars, rebates, bankruptcies, and many railroads in shaky condition. To blame competition for these, however, is to mistake the symptom for the cause. Rate wars are bargain sales or clearance sales; such sales, if they are genuine, are the result of either overproducing or overpricing. It is generally agreed that there was much overbuilding of railroads. The main reason for this was government aid. Several things may have contributed to prices being too high at any given time: pooling, too many roads serving a given area, or inefficiencies of some of the railroads. But one cause may well have led all the others: drastic reductions in the money supply. In such a case – as in the early 1870's and early 1890's – drastic reductions in rates would have to occur in order to continue to keep as much traffic as formerly.

Rate wars, rebates, instabilities, and financial failures were effects not causes. They were effects not of competition but of tamperings with the market, tamperings by governments and the railroads. Competition was the cure, the means by which the adjustments would be made to offset the interferences, adjustments which would mean the triumph of the efficient, the reduction of rates, the consolidation of lines into larger systems, and the providing of the optimum service to the consumer.

Those who proposed government regulation and restriction of the railroads were calling for combating phantom and illusion. They confused effects with causes and cures with disease. They misunderstood the exigencies of railroading and the nature of competition. Their laws reflected this confusion and when put into effect produced the opposite of what should have been wanted.

*Next: Early Regulation – 1887-1918.*

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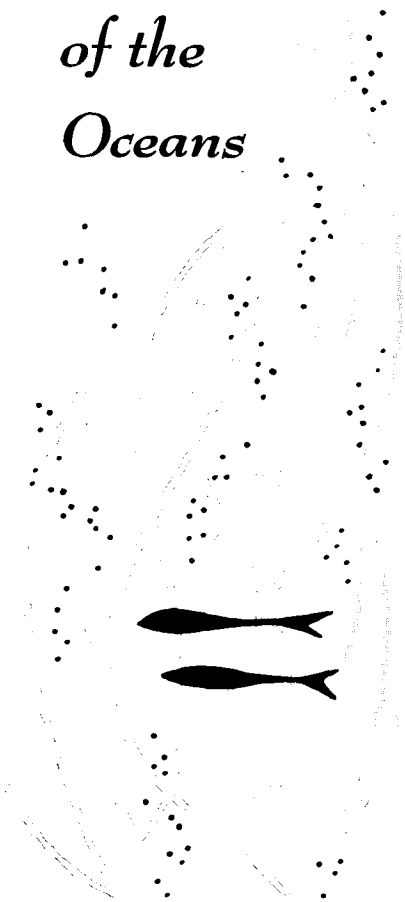
ROBERT POOLE, JR.

# The Wealth of the Oceans



THE OCEANS cover 71 per cent of the earth's surface; the Pacific alone measures 64 million square miles, more than the total land area of all the continents combined. As the world's population inexorably increases, and the land becomes ever more crowded, its food-producing capabilities increasingly strained, and its mineral resources reduced towards depletion, it is reasonable that man will look toward the sea as a new frontier to use and conquer.

And well he might, for the sea is incomparably rich in oil, minerals, and sources of food. Offshore oil wells already produce one-fifth of the world's oil and gas; by 1980 they are expected to produce one-third of the total. Since 1946 U. S. companies have drilled over 10,000 wells off the coasts of the U. S. alone, and have invested over $13 billion in offshore exploration and development. Offshore drilling is proceeding in 27 other countries and surveys are underway in 50 others.[1]

The oceans act as a huge storage

[1] "The Physical Resources of the Oceans," Edward Wenk, Jr., *Scientific American*, Vol. 221, No. 3, September, 1969, p. 166.

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tank for minerals washed from the land by rivers and streams. Each cubic mile of the 350 million cubic miles of seawater contains 165 million tons of solid material—including all major industrial metals. At present, only sodium chloride (table salt), magnesium ($70 million worth annually), and bromine (70 per cent of the world's supply) are being produced commercially from sea water in large amounts.

Sulfur occurs in "salt domes" located on the sea floor, and can be mined by the simple technique of piping a stream of superheated water into the dome. The heated water melts the sulfur, which is then forced up by compressed air. Current U.S. offshore production is worth $37 million annually, but the serious world-wide sulfur shortage is likely to lead to a large-scale expansion of offshore production.

On the sea floor, at depths of 1,000 feet or more, lie numerous ellipsoids of metal, from one to three inches long. Because they generally consist of from 20 to 40 per cent manganese, they are known as manganese nodules. Other components of the nodules include iron, cobalt, nickel, and copper. Since manganese, used primarily in steel production, is not found in the U. S., there is a great deal of interest in mining the nodules, particularly those found relatively close to the coast.

Besides oil and minerals, the oceans are a valuable source of food. At present approximately 55 million metric tons of fish – about $8 billion worth – are caught each year.[2] Over half of this total is turned into meal and used as animal feed. All countries possessing a shoreline participate in ocean fishing, but about 75 per cent of the total is harvested by 14 countries, each of which produces over a million tons per year. The growth rate of fishing yields continues to be greater than the growth rate of human population, one of the few foods for which this is the case. In view of the huge area of the sea, compared with diminishing amounts of arable land, fishing is likely to become a growth industry in the decades ahead.

### *Current Ocean Technology*

While the U. S. government has been spending billions of the taxpayer's dollars on a crash program to explore outer space, private businessmen, both here and abroad, have quietly been spending millions of their own developing new technology for exploiting the oceans. Within the last decade,

[2] "The Food Resources of the Oceans," S. J. Holt, *Scientific American*, Vol. 221, No. 3, September, 1969, p. 178.

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a number of substantial breakthroughs have been made – in transport, exploration, and production methods – which themselves are only a foretaste of what is to come.

In ocean transport, the sixties have been the decade of the supership – container ships and tankers with as much as ten times the capacity of the ships of the fifties. The economics of these vessels are such that it is cheaper to haul Middle-East oil around the tip of Africa via supertanker than it is to send it by conventional tanker through the Suez Canal. Along with the supership has come the development of vastly more accurate navigation systems. Such devices as self-contained inertial navigators (as on jet airliners), hyperbolic radio navigation systems (such as LORAN and OMEGA), and orbiting satellite position-sensing have made it possible for a ship in mid-ocean to know its position to within 0.1 mile or less (an improvement of more than 10 times over earlier methods). Thus, it is increasingly possible to think in terms of well-defined regularly traveled sea "highways."

Progress in undersea exploration has been even more spectacular. Within the last ten years a new type of undersea vehicle has been created – the "manned submersible." This is a vehicle designed specifically for undersea exploration, self-propelled and self-sufficient, in some cases with underwater hatches and various "manipulators" (remote-controlled arms and/or tools) for working on the sea floor. A few of these vessels have been Navy research craft, but for the most part they have been designed, built, and operated by industrial firms. Some of the better-known ones are North American's "Beaver" (2 men, 1,000′ capability), Westinghouse's "Diving Saucer" (2 men, 1,000′) and "Deep Star" series (3 men, varying depths to 20,000′), Lockheed's "Deep Quest" (4 men, 6,000′), and Reynolds Metals' "Aluminaut" (6 men, 15,000′).[3] These vehicles are being used for research into all aspects of undersea operations – vehicle design, human performance underwater, mining and mineral prospecting, biological data-gathering, et cetera. These projects and the Navy's Tektite and Sealab experiments will provide man with a vast new capability for living and working under the sea.

### *Improved Production Methods*

The third major area of underseas technological progress is in production methods, the single

[3] "Manned Submersibles," L. S. Linderroth, Jr., *Mechanical Engineering*, June, 1968, p. 32.

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greatest advance being in deep water drilling ability. Although offshore drilling has rapidly expanded in the past decade, platforms have been in relatively shallow water, firmly founded on seabed. Recently, though, drilling companies have developed floating platforms, from which they can drill in deep water, despite buffeting from wind and water. One semisubmersible variety makes use of water-ballasted tanks to sink the lower structure sufficiently beneath the turbulent surface to render it isolated from wind and wave motions.

Another technique, typified by the Scripps Institute of Oceanography's "Glomar Challenger" ship, uses specially modified drilling ships. To keep this sort of ship motionless over a drilling site, it is equipped with fore-aft and port-starboard thrusters, sonar position-sensors and a central computer which monitors the ship's position via the sensors and sends correction signals to the thrusters. To date the Glomar Challenger has successfully drilled in waters up to 17,000 feet deep.[4] This means that the distinction between the continental shelves and the deep ocean is no longer meaningful, as far as oil drilling is concerned. Whereas the continental shelves comprise about 10 per cent of the sea floor, fully 98 per cent of the sea floor is less than 20,000 feet deep, and is therefore potentially available for oil drilling.

Various ore-mining ventures are in an earlier stage of development; nonetheless, American companies have committed substantial amounts of money. One of the largest ventures to date, Deepsea Ventures (a subsidiary of Tenneco), has committed $200 million toward a six-year ocean mining research and development effort.[5] Already the firm has developed a prototype mining system capable of excavating the sea floor one mile down. Also in development is a rig of three-mile depth capacity. Again, of significance is the imminent accessibility of not just the continental shelves, but virtually the entire sea floor.

### *Developments in Food Production*

Significant developments are being made in food production, as well. In addition to the continued expansion of commercial fisheries, new products are being developed and marketed. One example is the production of sodium alginate from seaweed. Companies like Australia's Alginates operate large

[4] "Technology and the Ocean," William Bascom, *Scientific American*, Vol. 221, No. 3, September, 1969, p. 199.

[5] "Ocean Firm Launches $100-200 Million Mining Venture," *Ocean Industry*, March, 1969, p. 66.

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harvesting ships to gather kelp, which is processed in factories to produce sodium alginate (used in instant puddings, salad dressings, cake mixes, beer, and other processed foods).[6] Another example is the recent commercial development of fish protein concentrate (FPC) in the U. S. FPC is produced by grinding up "trash fish" such as hake and processing it to yield a highly nutritious powdered food supplement containing about 75 per cent protein. Originally developed by the Bureau of Commercial Fisheries, FPC is now being produced commercially by companies such as Alpine Marine Protein Industries.[7] One of the company's first contracts was for 11 tons of FPC purchased by one of the organizations aiding Biafra. Given the extremely low cost of FPC (relative to other protein), and the huge need for protein in much of the world, the market for FPC appears to be vast.

### *The Legal Regime of the Seas*

Throughout history international law has considered the seas beyond the jurisdiction of any state. The general rule has been "freedom of the seas," the right of anyone to use the ocean for navigation, trade, and fishing, limited only by the boundaries of each nation's small offshore area (until recently either a three-mile or twelve-mile buffer zone).

A new trend began, however, after World War II. In 1945 President Truman asserted that the U. S. possessed exclusive title to the resources of the continental shelf surrounding the U. S. Although Truman's proclamation excluded any claims to jurisdiction over the water overlying the shelf or any restriction on navigation, the example had been set, nevertheless. In short order, Ecuador, Peru, and Chile made new claims to offshore territory, out to distances of as much as 200 miles. In each case, Truman's declaration was cited as a precedent. In the case of Ecuador and Peru, the jurisdiction included both the water and navigation rights, in an effort to protect their fishing industries. Various American fishing interests have recently urged that the U. S. make a similar declaration to keep European and Russian trawlers out of the New England off-shore fishing areas.

This type of bickering led to the 1958 Geneva Conference on the Law of the Sea, attended by delegates of most maritime nations. The conference worked out an agreement on the continental shelf, which defines the shelf as

[6] "Harvesting Seaweed Off Australia," *Ocean Industry*, March, 1969, p. 69.

[7] "Fish Protein Concentrate Production Is on the Rise," *Ocean Industry*, January, 1969, p. 36.

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"the seabed and subsoil of the submarine areas adjacent to the coast, but outside the area of the territorial sea, to a depth of 200 meters or, beyond that limit, to where the depth of the superadjacent waters admit of the exploitation of the natural resources of the said area."[8] The conferees agreed that the seabed so defined is under the exclusive jurisdiction of the adjacent nation's government.

At the time of the Convention, the above definition closely approximated the area commonly meant by the term "continental shelf," since exploitation of resources at depths below 200 meters (665 feet) was considered fairly unlikely. As previous paragraphs have pointed out, however, technology has made major advances in the last decade, to the point where the 1958 wording now implies that the continental shelves are virtually unlimited, extending as far into the deep ocean as a nation's technology will permit. As a result, there is increasing discontent with what now appears to be a very imprecise definition. Consequently, the past several years have seen an extensive round of conferences on the subject, such as 1969's Law of the Sea Institute Annual Summer Conference, the Marine Technological Society meeting in Miami, and the Italian International Regime of the Sea symposium.

In 1967 the government of Malta introduced a proposal in the UN that would assert the UN's jurisdiction over, and ownership of, all deep-sea resources, to assure that "all mankind" would benefit from them. After several years of discussion, on December 16, 1969, the General Assembly adopted (62 to 28) a resolution stating that pending establishment of an international regime for the seabed, states and individuals were "bound to refrain" from all exploitation of the seabed beyond territorial limits. In addition, "no claims to any part of that area or its resources shall be recognized."[9] The reaction from American industrialists? Of course: silence.

### *Nationalists vs. Internationalists*

The controversy, to this point, has revolved around two "opposing" views. The nationalists, on the one hand, favor an extension of the sovereignty of existing nation-states into the deep seabed, in order to protect and regulate the activities of the companies

[8] "Alternatives for Ocean Policy," Norman J. Padelford, *Technology Review*, July/August, 1969, p. 35.

[9] "UN Votes to Stop Civil Seabed Uses," *New York Times*, December 16, 1969.

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and/or agencies of those countries. The internationalists, by contrast, favor the expropriation of the deep seabed by an international agency, with much of the proceeds from commercial exploitation going to aid government programs in undeveloped countries.

This is a classic example of the fallacy of false alternatives. The issue is invariably presented in terms of "who should control seabed exploitation and how should the resources be divided up?" rather than asking *whether* it should be controlled and whether anyone other than the entrepreneur has the right to "divide up" the resources. For in fact there is a third alternative – a libertarian alternative – based firmly on rights, rather than feelings.

No one has the right to grant leases or concessions or drilling rights to that which he does not own, no matter how powerful his armed forces or how needy his constituents. The resources of the seabed are *unowned* resources, at present nobody's property, and therefore the property of whoever first successfully extracts them.

How would this principle work in practice? Wouldn't there be chaos, piracy, and warfare? No. There is no reason why peaceable development could not come about without government sovereignty over the seabed. First of all, no nation now claims sovereignty over the *surface* of the oceans – yet all nations freely use the seas for trade and commerce. Would trade be more peaceable if the UN extracted tribute from all ships which wanted to use the oceans? The suggestion is absurd, because freedom is so obviously superior to force. "Freedom of the seas" has a long history, violated at times, but generally adhered to, because it is in the long-term interest of all.

The seabed *does* pose problems not present on the surface, such as the (ultimately) limited amount of area to which claims may be laid. But past human experience provides some guidance. The seabed is a frontier area of unclaimed "land," much as the American West once was. With little formal legal theory and the barest minimum of government available, the early pioneers developed reasonably just concepts for defining ownership of this new frontier land. Several of these are worth examining for applicability to the seabed case.

### *Mining Claims*

Nearly everyone is familiar with the archetypical Western prospector, who roamed the unowned property of the frontier, searching for gold or silver. When he found a promising spot, he "staked

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out a claim" to a piece of land of a size he could work, and registered it with the authorities. If first to register a claim, he became the owner. He could not go out and make wild claims to huge amounts of territory; he established a claim by *working* the property in question. It became his through *use*. Objections might be raised to certain details of the way the process was handled in the early West. The important point is the principle involved – that of ownership arising out of *original usage* of a particular plot of land.

The same principle is equally applicable to the seabed. Modern digital information storage and retrieval systems, plus high-speed global communication systems and precision navigation and position-fixing systems, should make registering claims preventing "first-user" conflicts and pinpointing precise locations and boundary definitions eminently feasible. As for fears that "the few" will grab all the resources before "the many" have a chance to develop the technology, it is helpful to remember that the seabed comprises more than *twice* the land area of all the countries of the world. As long as no one can claim more than he can directly *use* (i.e., as long as governments cannot assert wild claims of "sovereignty"), it will be a long time before the seabed is all "used up."

The principle involved in frontier homesteading was much the same as that in mining claims. A particular plot of land of a size suitable for farming became the property of the first settlers to live there and actually work the land. The fact that the U. S. government initially "owned" the land is really beside the point; the essential feature is the principle of ownership arising out of usage. The same principle would apply to any sort of habitation or farming of the seabed or continental shelves. The fact that, at first, probably only large companies could afford such ventures has no bearing on the principle involved.

### Open Range

Another frontier principle with direct applicability to the ocean is the concept of the open range. For many ranchers, building fences to restrain their herds would have been both expensive and self-defeating, since it would have severely limited the amount of grazing land over which the herds could roam. It was in the interest of all the ranchers to let the cattle herds roam freely over all the open range. In order to keep track of ownership, each rancher devised a unique brand, with which he marked all his

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cattle. The ranchers respected each others' brands and cooperated to prevent cattle rustling by thieves. The cattle could thus move as required to good grazing land, without loss of ownership identification.

Much discussion has taken place in recent years about conservation of commercially-valuable marine life. Whales, in particular, are feared to be nearing extinction and even certain food fish (such as tuna, cod, herring, and perch) are considered "overfished" in certain areas. The usual conservationist "answer" is to forcibly impose restrictions on the size of catches or the efficiency of fishing methods. Yet this is essentially a negative, preserve-the-status-quo approach (besides being a violation of rights). Had men taken the same approach with land animals (i.e., "conserving" wild cattle, pigs, and chickens for hunting), the world could support only a fraction of the population it supports today, through animal husbandry. Obviously, the same approach will eventually have to be applied to marine animals.

For large marine animals, such as whales, seals, sea turtles, and tuna, the open range concept can be applied, with the entire ocean substituted for open grazing land. Just as the ranchers found it wise to let their domesticated herds roam free, so might the aquaranchers of the future. Identification of the animals is not impossible: whales could actually be branded, although a better solution for all large marine animals might be to implant microminiature transmitters in the young, permitting the movement of individuals or schools to be monitored continuously. Arthur C. Clarke, in his novel, *The Deep Range*[10], suggests that small manned submarines could be used for undersea herding, thus completing the open range analogy.

The aquarancher's return on his investment might be substantially improved if he raises large numbers of fish in captivity before turning them loose in supervised herds. The number of baby fish reaching maturity is only a minute fraction of the number hatched, due to predators and other hazards. By constructing large undersea net-pens, and using the same mass egg-fertilization and fish culturing techniques used in raising trout and other inland fish, the aquarancher could increase the annual catch by orders of magnitude. Smaller species could be raised entirely in huge undersea net-pens, again with vastly improved yields.

These few examples are meant

[10] Arthur C. Clarke, *The Deep Range*, Harcourt, Brace, 1957.

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as illustrations of the possibilities inherent in a situation where freedom, rather than force, prevails. Their realization requires no "sovereignty," hordes of bureaucrats, or volumes of regulations; it requires only that "freedom of the seas" be extended to the seabed, i.e., that all involved in undersea development recognize the rights of all participants on a first-come/first-served basis. Disputes which arose could be referred to the Permanent Court of Arbitration or the International Court of Justice at the Hague, as maritime disputes have been for many years. Defense of various seabed installations could be provided by the navies of each installation's home country (if any), or by the participants themselves. Indeed, one of the more interesting prospects of a free seabed is that new cities – free ports – may be created, independent of and unhampered by any state.

### *Before Governments Take Charge, Why Not Try Freedom?*

In most spheres of human action, the state is already firmly established, with its vast array of rules and regulations, layers of bureaucracy, and well-established penalties for transgressors. With the seabed, however, the state is very late in catching on to what technology is making possible. As the foregoing has pointed out, much of the technology needed for deep-seabed exploitation is already in existence. The rapid establishment of operational drilling, mining, and living installations on and under the sea would confront the statists with a *fait accompli* which would make any opposing action on their part much harder to pull off.

It is interesting to note that both the U. S. and Russia opposed the recent General Assembly resolution calling for a moratorium on seabed exploitation, as did many of the governments of Europe. Thus, those nations whose engineers and industrialists already have the means to exploit the seabed could easily proceed on their own to set up a data bank for registering individual claims to seabed property (on the basis of *use*), and agree to arbitration of disputes by the international Court.

The statists have had their chance: they have spread their coercive bureaucracies over every square mile of land on earth. The oceans represent man's second chance – perhaps his last – to solve the environmental problems that, unchecked, threaten his extinction. It is time – past time – that men of integrity stood up and said, "Enough!" Laissez-faire: hands off the sea.

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# The "POWER" Problem on Campus

## *An Economist's View* . . . . . ISRAEL M. KIRZNER

MUCH of the current crisis atmosphere in the universities revolves around the question of the locus of power – student power and faculty power. From all sides, one hears the opinion expressed that students and faculty, who have until now languished passively under authoritarian college administrations and boards of trustees are entitled to share in the running of their university. A democratic university – one which permits faculty and students to participate in the host of administrative decisions which affect their lives – requires, we hear, a massive structural revision in the direction of greater direct student and faculty power. And there is no doubt that a feverish rush toward "democratization" is already under way on the part of college and university trustees and administrations fearful of campus disruptions by students and even by faculty.

In this writer's opinion, this tendency is – quite apart from the issue of disruptive and violent tactics – a most unfortunate one, the result of badly confused thinking on the role of the university in society, and likely to be responsible for serious deterioration in the quality of higher education in this country. Let it be emphasized that what is being criticized here is not at all the very sensible opinion that student and faculty views should help determine university decisions in a meaningful way. The error, as we will discover, lies instead in the naive demands for

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a sharing of the *ultimate* responsibility for the university with faculty and students.

The attitude underlying the contemporary cries for greater student and faculty power is something like the following. The university is seen as a kind of self-governing community – comprised of administrative, faculty, and student members. However, the government of this community has until now been concentrated almost exclusively in the hands of the first of these groups: the administration – a group which is, in turn, answerable to the trustees or a similar body. Students and faculty, although they spend years of their lives in this community, have until recently been treated, in effect, as children, with the most important aspects of university life legislated upon without their being consulted in any meaningful way. Democracy requires a change that will replace government by trustees and administrators with a government in which all the member groups of the community will participate. Campus stability requires that university rules be formulated on a procedure that ensures that student and faculty views be taken into direct account. (More extreme versions of this attitude would relegate administrators to an even more insignificant role.)

***Responsibility for Resources***

But this attitude completely misunderstands the economic relationship between the university and society in general. This attitude might be an appropriate one if a university were an economically independent entity, that is to say, if its ability to support its activities were unrelated to the character of these activities. If this were the case, arguments in favor of "democracy" within the university might perhaps carry weight. But, of course, the reality is quite a different one. The university, in order to carry on its activities, must compete for economic resources with alternative social purposes. It must, therefore, like other enterprises, win support for its activities by virtue of the importance of these activities *to others*. Ultimate responsibility for the university, then, does not and cannot mean merely the responsibility to act as steward over *given* resources – which responsibility might then, at least in principle, be shared jointly with faculty and students. *Ultimate* responsibility for the university must mean the responsibility both to *marshal the resources necessary* to carry out the declared purposes for which the university is intended, and to *deploy these resources* in a manner faithful to the declared purposes. To fail to see this simple

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truth is to be hopelessly unrealistic.

That this simple truth may be an unpalatable one is not surprising. The economist is accustomed to reactions of outraged shock whenever he points out that some noble and lofty goal competes for resources with other important purposes – and must justify its claim to these resources. But to the eyes of the economist, a refusal to recognize the importance of calling attention to such mundane matters as the need for justifying resources used, is worse than to be airily unrealistic and naïve; it borders on an arrogant conviction that all the other purposes of people in society must bow unconditionally to the needs of the university, no matter how or what the university turns out to be.

### *Organized for Profit or for Philanthropic Purposes*

Who *should* bear the ultimate responsibility of marshaling and administering the resources needed for the university? In a free society this question is an inappropriate one. In a free society *anyone* may, if he chooses, act as an "entrepreneur." Anyone may, if he believes himself able to undertake the task, set out to build the institution he chooses. To do so he must convince owners of resources that it is worth their while to entrust their resources to his stewardship. He may, conceivably, be able to do this on a strictly businesslike basis, he may be able to produce a saleable brand of education for which students are willing to pay sums sufficiently high to return a profit to investors. In this situation what is chosen to be produced and sold is a brand of schooling, carefully attuned to the needs of the prospective employers (reflected by the salaries that prospective graduates can expect to command), to the tastes of the immediate consumers – the students (as reflecting their willingness to undergo the rigors of the course of training being offered), and to the attitudes of the teachers (as reflected in the salaries and working conditions for which they are willing to sell their teaching skills). In such cases the paramount importance of paying careful attention to student and faculty opinions is abundantly clear – without, of course, the slightest need to share ultimate responsibility with anyone.

Or the "entrepreneur" may, on the other hand, persuade owners of resources to invest in an institution which cannot promise to return a pecuniary profit on investment. To do this he must convince philanthropic resource owners that his institution will fill a social need

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which these philanthropists are prepared to support. In this situation what is chosen to be produced by the entrepreneur will be a brand of schooling which not only reflects, in part, the attitudes of prospective employers, students, and faculty, but reflects also the philanthropic goals of the resource owners.

Of course, the "entrepreneur" may well be one of the resource owners or one of the consumers. He may be a teacher or a student, or a group of teachers and/or students. Who the "entrepreneur" is does not affect the basic relationship between the individual responsible for the institution and all those affected by its activities. Ultimate responsibility for the university, as for any enterprise or institution, will, in a free society, inevitably tend to come to rest in the hands of those able to choose successfully a mix of educational inputs and a mix of outputs that yields a return – whether in the form of pecuniary yield, or in the form of the psychic satisfaction to the philanthropist (who "enjoys" contributing to what he considers to be the betterment of society, or to the advancement of what he considers to be significant knowledge). It may well be that the successful "entrepreneur" of the university will be he who knows how much power to delegate to faculty and to students. But the ultimate responsibility must be his who is able to convince "investors" that he can secure them a return.

### *The State as Entrepreneur*

The possibility of state-supported universities does *not* alter the picture. The state may act as "entrepreneur" for the universities, raising the necessary support by taxation. Presumably taxpayers exercise, through their representatives, control over the purposes which they are supporting with their tax dollars. In a democratic society, the justification for the taxation must lie in the quality of the institutions supported.

No matter, then, how a university happens to be run – whether as a profitable business, a philanthropically supported institution, or a state-supported institution – decision-making must relate output to the mobilization of the resources necessary for input. As far as prospective new institutions are concerned, anyone – not excepting prospective faculty, students, or janitorial staff for that matter – may seek to set up institutions which they believe can justify support. Their convictions can then be tested against competition in the relevant markets – the market for teachers, for graduates, for students, for philanthropic support, or in the competitive arena

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of those seeking government subsidies.

For anyone to attempt to control, or to share in the control, of an *existing* institution, is however, quite another matter. Anyone may, of course, seek to persuade the present entrepreneurs – be they trustees, administrators, or whatever – of his own eligibility and suitability to run the institution. Times change, the tastes of students, teachers, and philanthropists change, and it may be entirely in order for an existing institution to change its direction. But such a bid, for a change in the pattern of control, cannot rest on grounds of "democracy" – which simply have no relevance in this context (except as a possible tool to be used by the entrepreneur to further the purposes of his institution). Such persuasion must rest on the ability to achieve, with superior efficiency, those goals selected by the entrepreneur as feasible in the light of the market constraints that are operative.

To demand that control over an existing institution be surrendered, in whole or in part, is to demand that one set of entrepreneurs arbitrarily – that is, without reference to the degree of success with which the "investors" can be assured a "return" on their investments – hand over their enterprise to another set. The ironic tragedy of such a demand does not lie, perhaps, so much in its trampling upon existing property and other rights as in its threat to the very future of the relevant institution. As soon as the direct entrepreneurial link between the supporters of the university and the university itself is severed, the university is in jeopardy.

### *Breaking the Link Between the Institution and Its Supporters*

It is not difficult to understand the reasons why the demands for student and faculty power have gained currency despite the above considerations. The naïve observer is not fully aware of the necessary link between the institution and its supporters. Very often an atmosphere is deliberately fostered to mask the dependency of the university as an institution upon outside, private or government support. Faculty and researchers are extremely jealous – and rightly so – of their independence from trustee, donor, or government interference with their work. But the wholly justified insistence that the supporters of education understand and respect the intellectual integrity of those whose educational endeavors they sponsor, has become transformed into the spurious notion that the supporters of education do not (and certainly should not) exercise ultimate re-

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sponsibility for the uses to which their resources are put.

The illusion has resulted that the university is costless or at least, that its activities, whatever they may be, can somehow be carried on regardless of cost. But the basic economic fact of life remains that in a free society ultimate control over the university *does* inevitably rest in the hands of those able to convince supporters of the worth of their final educational product. Only in an atmosphere in which a conceptual gulf separates the need for support on the one hand, from the substantive activities of the university on the other hand, could the current view of the university as an insulated island, an isolated community of scholars and students, arise.

Continued efforts to treat the university as an economically independent entity can only tend to bring about results that must be described as disastrous. To the extent that the power changes forced by student or faculty pressure result in an institution out of line with the goals of its supporters (private or government), the outcome must inevitably be a tendency towards the erosion of their support. A university, the control of which is the issue between competing power groups, is *not* a given asset being contested for by rival claimants. An asset's existence does *not* depend on the identity or the motives of its possessor; a university's existence depends on the availability of support – which cannot be expected to be provided without regard to the purposes of those under whose stewardship the university rests.

### *Supporters May Share Responsibility But Cannot Avoid It*

In a free society the erosion of the support for a given existing institution does not necessarily mean a long term net loss from the view of society. Support withdrawn from one institution may be available for the support of other, or new, institutions. But to the extent that established institutions suffer decay and decline, society itself suffers "short-run" losses (which may, by the by, persist for a long time). And of course to friends of existing institutions the prospect that eventually new institutions will emerge to replace the old, is small comfort. It is not merely the past supporters of the established institutions who suffer losses when they discover that their investments in these institutions have gone sour. The erosion of such support represents a social loss, to the extent that the capital sunk into these existing institutions obtained its value from the expectation of continued support.

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The point being made here is not that the supporters of a university, philanthropic or governmental, *should* have the power to control the university. The point is simply that the economic facts of life mean, ultimately, that they *do* have this power. (And let it be noticed that from the neutral perspective of the economist, this ultimate control is not at all inefficient. With a given distribution of resources, a society "should" – as a matter not of ethical rightness but of efficiency – get the universities which are desired by those willing to make the sacrifices needed for them. And this does not prevent the economist from recognizing that what donors desire *may* be quite "wrong" from the educational and cultural point of view.)

Moreover, recognition of this ultimate economic control does not, at all, necessarily spell the impossibility of free academic inquiry. Hopefully, supporters will deliberately seek to shape an institution designed to promote free inquiry and to respect the intellectual integrity of its faculty and students. But we must recognize that this is a hope which depends on the *willingness* to do so on the part of those whose resources support the university. (An entirely appropriate question in this regard is that touched on briefly by Professor Stigler in his well-known essay, "The Intellectual and the Market Place," of whether state support is more or less likely to conduce to an atmosphere of academic freedom than private philanthropic support.)

And once again, let it be stressed that supporters may well elect to delegate wide powers to faculty and to students. To differing extents this is, indeed, the almost universal practice. And it may be an entirely desirable policy to extend this practice further. The point being made here has nothing to do with this possibility. It deals only with the demands and procedures for power shifts within the university that rest upon the call for the *surrender* (partial or total) of the *ultimate* responsibility and power that rest on the supporters of the university. It is the calls for this kind of surrender which are both economically unrealistic and socially harmful.

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# I THE RADICAL

EARL ZARBIN

MY IMMEDIATE reaction to the newspaper headline, "Zarbin's Radical Right Ravings Embarrass Council," was bewilderment. I had not intended to embarrass, or to distress; I merely had hoped to explain why I was in opposition to a proposal, and to ask the council to consider my objections before deciding whether it would approve the ordinance.

What had I said that drew such strong reaction? I had gone before the city council to argue against the inclusion of health and safety standards in existing buildings (commonly known as a "housing code") as part of a revised Construction and Residential Safety Code ordinance.

I oppose a housing code for two reasons: 1) because it is an invasion of the use of private property; 2) because the acknowledged reason city officials and community "leaders" want it is to qualify the city for a variety of Federal aid programs, such as urban renewal and model cities, which I oppose. I told the city council:

"How a man lives inside his house, what sort of house he has, is not the legitimate business of the city council or its agents. . . . This city council has no charter to invade my home or to regulate my personal habits so long as what I do is not destructive to other human beings. If I want to live in a room without windows, that's my business. If I want to read by candlelight, that's my business. If I don't want to put a furnace in my house, that's my business—and it can be nothing but arrogance and know-it-allness for anyone else to presume to tell me how I should live. . . .

"The fact that the proposed ordinance would (temporarily) lack enforcement provisions does not lessen the provocative nature, nor does it reduce the insidious implications, of the ordinance. Moreover, to suggest or to hint, as it has been done, that the city would not attempt to enforce its provi-

Mr. Zarbin is a newspaperman in Arizona.



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sions to the fullest, is to expose the deceitfulness of those who so desperately want this council to enact a housing code. What purpose is there in passing an ordinance unless the city intends to use the police power to enforce it? The passing of laws is no game – it is a serious business, and this city council should realize that when it passes an ordinance it is throwing the weight of the organized police force against the individual citizen. This realization should lead the council to act with extreme care. . . .

"I do not want the fruits of my labor spent on restructuring this city – when there is economic justification for spending money for tearing down buildings, that will be done by the people voluntarily. For example, the First National Bank has torn down old buildings to replace them with a new building. The Valley National Bank is doing the same thing. Where there is economic justification, these things will be done, and they will be done without the mayor or anyone else holding a gun at our heads. But the people who want the housing code and Federal urban renewal programs are not satisfied with the pace for change made by free human beings working in voluntary cooperation. The people who want the housing code and the resulting Federal programs are social engineers, they are do-gooders who aren't satisfied with the rate of change brought by free people. Because the do-gooders have failed to sell in the market place their ideas on where our money should be spent, they have turned to the city government and to the Federal government to do it for them."

***If, at First, You Don't Succeed . . .***

I knew beforehand that my remarks would receive a chilly reception. The community "leaders" and city officials had been attempting to enact a housing code and to usher Federal aid programs into Phoenix for more than a decade. Twice, in 1963 and in 1966, when housing code proposals (and the anticipated Federal urban renewal projects) had been put to votes, the people had rejected them. But the agitation for a housing code and Federal aid programs as the only solution for Phoenix problems never ceased among city officials and community "leaders."

I have maintained that everything that has to be done in the community can be accomplished through voluntary cooperation, that it is immoral to use the police power to require individuals to contribute to projects they would not voluntarily support, that charity not given voluntarily is not charity.

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Nothing that I had said sounded radical to me, but a young friend disagreed. Virtually everything that I had said, he had assured me, had been radical. I replied I couldn't understand why, since I considered what I had said to be in keeping with the precepts of the U. S. Constitution and the philosophy of freedom.

But I began thinking about it. Perhaps what I had said was radical. *Webster's Third New International Dictionary* includes these definitions of radical:

As a noun, "one that advocates a decided and often extreme change from existing, usual, or traditional views, habits, conditions, or methods." As an adjective, "marked by considerable departure from the usual or traditional. Tending or disposed to make extreme changes in existing views, habits, conditions, or institutions."

### Back to First Principles

By these definitions, what I had said was radical, but only if government intervention had become the usual, or traditional, view. In arguing for voluntary cooperation in resolving problems, I indeed was suggesting "extreme changes in existing views," but only if collectivism was accepted as being dominant in our social and political habits. Sadly, the evidence around us is that collectivism today is considered the social and political panacea.

In opposing government intervention, in advocating personal choice and responsibility, my words were *radical!* But if they really are radical, how deep, how broad, is the gulf between the thoughts of the men who produced the Constitution and the men who today proclaim themselves to be its inheritors!

Radical, as a noun, also means "one who advocates radical and sweeping changes in laws, institutions, and methods of government with the least delay."

In speaking to the city council, I did not advocate violent revolution to alter the "methods of government with the least delay." I do favor a change in the methods of the Federal, state, and local governments; I want them to cease using the police power to require us to accept "goodness" as it is conceived by those in control of government.

Although the process may be painful, slow, and frustrating, I believe that what has been done to this country through the ballot box can, and must, be undone the same way. I suppose this belief reduces the extent of my radicalism, but I cannot today envision a restoration of constitutional government by some other means.

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## ABOUT THE AUTHOR

FOR OVER FIFTY YEARS, Henry Hazlitt has been active in the business world as a lecturer and prolific writer, specializing in the complex sphere of economics and finance. Author of *Economics in One Lesson, The Failure of the "New Economics": An Analysis of the Keynesian Fallacies,* and *What You Should Know About Inflation,* Hazlitt, with his insight into the intricacies of social economics, has the appreciation of specialists and laymen alike.

The author began his career as a reporter for *The Wall Street Journal.* He became Literary Editor of the *New York Sun* in 1925, of *The Nation* in 1930, and succeeded H. L. Mencken as Editor of the *American Mercury* in 1933. He subsequently wrote the financial and economic editorials for *The New York Times* until September of 1946 when he became writer of the "Business Tides" column for *Newsweek.* His twice-a-week column for the *Los Angeles Times* syndicate began in 1966.

But before all that, when he was 21, Henry Hazlitt's first book had been published – *Thinking as a Science.* It was written, he explains, because "I primarily wanted to teach *myself* how to think more efficiently, independently, and, if possible, originally. I had already sensed that 'he who teaches, learns.'"

When the book was republished 53 years later, in 1969, by Nash Publishing Corporation, 9255 Sunset Boulevard, Los Angeles, California 90069 ($4.95), instead of extensive revision of the original text, the author prepared an Epilogue, reproduced here by permission. Hopefully, the reader will want to review the Introductory Course – read the entire book.

# THE ART OF

I HAVE LEFT the text of the first edition of this book practically unaltered. But I promised in the Preface that I would outline in an epilogue the changes I would make today if I were writing an entirely new book on the same subject. Here is that outline.

As thinking is primarily an activity, an art, the new book would probably not be called *Thinking as a Science,* but, perhaps, *The Art of Thinking Scientifically,* or, simply, *The Art of Thinking.*

There would be one or two major changes from the present book, at least in emphasis. I am more and more impressed, as I grow older, with how little the individual could accomplish in any direction whatever if he had to depend entirely on his own unaided efforts. He could not survive his first few years of life without the help of his parents or guardians. He could



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# THINKING

not think at all (or only at the level of a chimpanzee) if he did not inherit from the society and civilization in which he was born the priceless gift of an already-created language. Without this he would not only be unable to reason logically, he would have nothing worthy to be called a "concept." He could not frame a sentence; he could not even name things. We think in words, even in conversations. Our language, concepts, and logic are part of the social inheritance of all of us.

This has several important corollaries. One of them is that before the individual can even dream of "thinking for himself," or solving a simple problem, he must first acquire at least an elementary knowledge of what mankind has already learned, discovered, or invented before him. Even if he receives what is called a good modern education, it will take him till the age of eighteen or more to acquire even the rudiments of what he needs to know.

So my new book would emphasize far more than my previous one the need of extensive reading and study before the reader can profitably launch on "thinking for himself" or arriving at "independent" conclusions. That, of course, should always be his goal; but the road to that goal is long, hard, and often roundabout.

### *How to Study*

My new book would therefore have a chapter on "How to Study." One of the topics considered in it would be the possibility of increasing one's reading speed, and the methods of achieving this. But my new book would emphasize what some of the teachers of the new "speed reading" methods unfor-

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tunately do not – the necessity that the student learn to "change gears," i.e., to learn to read different matter at different speeds depending on its nature, importance, and difficulty, as well as on the reader's purpose in reading it.

One of the chief problems of study, in fact, is how often the student should *re*read a textbook or a particular passage of it, or how often he should go over substantially the same material in other books. In studying a foreign language, for example, the reader may have to come across the same word or phrase again and again before he is able to translate it on sight, and he may have to see or hear it many more times before he can use it unprompted in a sentence framed by himself.

Knowledge of a foreign language, in short, is not really knowledge until it has been thoroughly assimilated, or *worked in*. This is no doubt widely recognized. But what is much less widely recognized is that this is not merely true of a language but of practically any other subject. A doctor is seldom a good doctor when he has just graduated from medical school, even though he may already have been over much verbal material with dreary repetition. Not until he has served as an intern, or been in private practice a couple of years, and so gone still more over the same ground and again and again encountered the same or similar problems, is he likely to achieve a quick and confident recognition and interpretation of symptoms.

A student of algebra may be taught how to extract the square root of a polynominal, and may be intelligent enough to follow the demonstration the first time, but it will probably not be until he has extracted many square roots of many polynominals that he will really feel confident he knows how. The student of languages, as well as the student of math, or a doctor, or a pianist, soon finds himself slipping backward if he ceases to study or practice. Our memories are not what they should be. A little of our knowledge is constantly oozing away. Knowledge and skill cannot be retained, let alone increased, except by constant addition, renewal, and refreshment.

I might also in this "How to Study" chapter give some hints to the reader on how to set up a study program to teach himself a particular subject, but in this epilogue I am postponing that to a later point. I may say here, however, that there are already some excellent books or pamphlets on how to study. The reader should find a wide range of choice in a college bookshop.

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***A man with a scant vocabulary will almost certainly be a weak thinker.***

### *Language and Thought*

My new book would have a chapter on "Language and Thought." I pointed out earlier that without language we would hardly be able to think at all. As the great nineteenth century philologist Max Mueller put it: "To think is to speak low. To speak is to think aloud."

The corollary of this is tremendously important. A man with a scant vocabulary will almost certainly be a weak thinker. The richer and more copious one's vocabulary and the greater one's awareness of fine distinctions and subtle nuances of meaning, the more fertile and precise is likely to be one's thinking. Knowledge of things and knowledge of the words for them grow together. If you do not know the words, you can hardly know the thing. We are told that the Tasmanian method of counting is: "One, two, plenty." This points to a very significant truth. Man could not even *count*, certainly not beyond the number of fingers on his hands, until he had invented *names and symbols for numbers*. For in speaking of the need for language for thought, we must, of course, include symbols as an integral part of language. It is amazing how recent in human history are even the Arabic numerals, the denary system, and the elementary signs for addition, subtraction, multiplication, and division — not to speak of the myriad symbols now constantly used in algebra, geometry, trigonometry, differential and integral calculus, vector analysis, and other branches of higher mathematics. A single tiny symbol or formula — like that for zero, or *pi*, or a function, or the square root of minus one, or $dy/dx$, or Einstein's famous $E = mc^2$ (energy equals the quantity of matter multiplied by the square of the speed of light) — can condense, sum up, fix, and hold forever a discovery that it may have taken mankind centuries to arrive at.

### *Words Sharpen Observation*

A vocabulary increases and sharpens our observation, as sharp observation in turn leads us to increase our vocabulary. The student of nature who is learning to recognize bushes and trees finds his observation increasingly sharpened as he is told how to identify respectively an oak, maple, elm,

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beech, pine, spruce, or hemlock. The name both fastens down the results of observation and tells him what distinguishing traits to look for. As a result of his knowledge, a countryman very seldom calls a specific tree simply a tree. The professional forester or nurseryman habitually makes even finer distinctions, such as that between red oaks, black oaks, and white oaks, or between Norway maples, Schwedler maples, and sugar maples.

Once again, when a student of nature has a leaf described to him, or wants to describe one, he finds himself immeasurably aided by a specialized vocabulary of description for certain characteristics of edge or form – dentate, crenate, serrate, ovate, obovate, lanceolate, oblanceolate, sagittate, orbicular, and so on. The more names that are mastered, the more is observation sharpened.

This intimate interdependence of language and thought exists in all fields of knowledge, from the simple and concrete to the most abstruse and abstract.

The highest thrill of the amateur bird watcher comes when he identifies a new species for the first time. He usually does this by comparing the new bird he has just seen with the pictures or descriptions in a bird book. But to be able to do this he has to observe very sharply everything he can – its size, shape, color, and markings, down to the minutest details, like the color and shape of its bill, its peculiarities of flight and song, and so forth.

When the bird student knows the *name* of the new species or its verbal description in a book he knows what to look for. His observation becomes keener not only for that time, but for the next time. By this process he finds his observation becoming ever more acute as his knowledge becomes fuller. The professional ornithologist, by a refinement of the same method, knows when he has discovered a species hitherto unrecognized by anyone. Whereupon he preserves his discovery, and makes it accessible to all, by giving the new species a name, accompanied by a full and precise pictorial and verbal description.

### *Identifying the Parts*

Let us turn to still another field. The first thing the student of medicine is asked to do is to study anatomy. This means, at the beginning, to learn to recognize and name the hundreds of parts of the human body, from the *anulus inguinalis profundus* to the *vesicula seminalis*. It requires the dreary memorization of hundreds of names even to master what is called *gross* anatomy. When the

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student comes to some special part, like the nervous system (not to mention microscopic anatomy), he must learn hundreds of more names. And he must learn this special vocabulary if for no other reason than to know what his professors are talking about. Later on, as, say, a medical researcher, he must know this vocabulary not only to explain his findings in a medical journal, but to make them in the first place.

One of the things that used to puzzle me as a youth was why even the greatest painters and sculptors, like Leonardo da Vinci and Michelangelo, thought it necessary to study artistic anatomy. Their eyes were sharp enough: couldn't they have painted just what they saw? The answer, as I have now come to realize, is that by learning the names, position, and description of the muscles, tendons, and veins in the normal human body *they knew what to look for* and *where to look for it*, and their naturally acute vision was sharpened still more.

What is true for the supreme genius is true for those of us who are less gifted. In a charming introduction to his book on birds, John Kiernan tells the reader that he had never seen a white-breasted nuthatch until he saw, on a bird card, a picture of one going down a fence post headfirst. The next day he saw five different nuthatches at different places. They had always been around, but he had never before looked for them. He had been blind!

The reader has perhaps had the experience of looking at some object through binoculars or a magnifying glass and seeing details that he could not previously see with his naked eye; but on removing the glass he could still see them, because now he knew they were there. *The Arabian Nights* story, telling how Ali Baba could not open the door to the robbers' den until he had learned to say "open sesame," contains a profound moral. To be admitted to the realms of knowledge we must learn the right passwords.

### Symbols of Communication

I remarked earlier that when I speak of "language" I do not have in mind merely words and sentences, but symbols, signs, and signals of all kinds used in human intercommunication. There are special symbols in every science; but I have particularly in mind numbers, notation, and other symbols of mathematics by which the results of mathematicians are made known to each other and without which, in fact, the mathematicians themselves could not even think mathematically. One authority, Tobias Dantzig, has written a book

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called *Number: The Language of Science.*

There are still further corollaries to be drawn from the inextricable interdependence of thought and language. He who seeks to be a clear and precise thinker must also seek to be a clear and precise writer. Good writing is the twin of good thinking. He who would learn to think should learn to write.

One of the most important steps, to repeat, is to enlarge one's vocabulary. The way most often consciously adopted for doing this is to study long lists of assorted words, usually polysyllabic. This may be better than nothing, but it is not the method to be preferred. It is generally more advisable to go from things and concepts to the names for them than to go from miscellaneous names to things and concepts. Vocabularies tend to grow with knowledge in general, and particularly with increasing knowledge of special subjects. Each science, discipline, art, sport, or branch of knowledge has its own special vocabulary, which is acquired with study or experience of that branch of knowledge or activity.

An abundant vocabulary is usually a by-product of wide knowledge. One good rule, both in thinking and writing, is never to use a word if you have only a vague and uncertain knowledge of its meaning. Look it up first in the dictionary to find its exact denotations and connotations – not to speak of its correct pronunciation!

### *Writing Improves Thinking*

The reader who seeks to write well and think well should aim first at the essential qualities – coherence, clarity, precision, simplicity, and brevity. Euphony and rhythm are of course also desirable, but they are like the final rubbing on a fine piece of furniture – finishing touches justified only if the piece has been soundly made.

As a method of procedure, the apprentice writer may often find it advisable first of all to root out his faults. He should try to acquire the Five Virtues of Coherence, Clarity, Precision, Simplicity, and Brevity by vigilant abstention from the Five Vices of Incoherence, Obscurity, Vagueness, Pedantry, and Circumlocution.

For those who ask why writing is important to the thinker, one reply would be that it may be of crucial importance when the thinker wishes to present the results of his thinking to his professional colleagues or directly to the public. Newton and Leibnitz each invented the calculus independently, and

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***He who would learn to think should learn to write.***

Newton's discovery was earlier. But it was the calculus as presented by Leibnitz that other mathematicians began to use, mainly because Leibnitz devised a better notation.

The Abbé J. G. Mendel's biological experiments and theories on heredity, propounded in 1866, were of epoch-making importance, comparable to Darwin's theory of evolution published in *The Origin of Species* in 1859. Darwin's book brought him instant world fame, but neither Mendel nor his contribution received any recognition until 1900, thirty-four years after he had published his results and sixteen years after his death. Recognition came only when other botanists independently obtained results similar to Mendel's and in searching the literature found that both the experimental data and the general theory had been published by him a third of a century before. Mendel's original paper had reached the principal libraries in Europe and America. But it was so sparely and obscurely written that even eminent botanists at the time failed to grasp its implications.

A book on the art of thinking is not the place to dwell in detail on the art of writing. The most illuminating discussion of its length written on the subject is still Herbert Spencer's essay on "The Philosophy of Style" published in 1871. (Unfortunately, its own style is somewhat stilted and pompous.) A helpful little manual is *The Elements of Style* by William Strunk, Jr., first published in 1918 and then republished with a delightful introduction and added chapter by Strunk's former student, E. B. White, in 1959.

Every professional writer ought to have, in addition to at least one good dictionary, four style books in his study: *The King's English*, by H. W. Fowler and F. G. Fowler, *A Dictionary of Modern English Usage*, by H. W. Fowler, *Usage and Abusage*, by Eric Partridge, and *Modern American Usage*, by Wilson Follett.

### A Notebook or Journal

And every serious thinker, especially if he hopes to be a professional writer, should keep a notebook or a journal. I pointed out, in the first edition of this book, that good ideas are often elusive and must be captured in flight – in

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other words, that it is excellent practice always to have a pencil and pad handy, so as to jot down a good thought the moment after it lights up your mind. The complacent assumption that once a bright idea or happy phrase occurs to you it is a permanent acquisition, to be called upon only when needed, too often proves false. Even Nietzsche, one of the great seminal minds of the nineteenth century, found that: "A thought comes when it wishes, not when I wish."

When we write out our ideas, we are at the same time testing, developing, arranging, crystallizing, and completing them. We imagine ourselves not only making these ideas clear to others, but making them seem as important to others as they do to ourselves. So we try to make what was vague in our minds precise and definite; what was implicit, explicit; what was disconnected, unified; what was fragmentary, whole. We frame a generalization, then try to make it as plausible as we can; we try to think of concrete illustrations of it. And as we do this, we also expose it to ourselves – and sometimes, alas, find that it is empty, untenable, or sheer nonsense.

A lot of ideas that cannot be tested by formal experiments can be at least partly tested by writing them out. A great teacher of my acquaintance, when a student bothered him once too often by persisting in some silly proposal of his own on a subject, would suggest that the student write a paper on his idea and bring it in at the next seminar. The student seldom did so; perhaps because he was mentally lazy, but more likely because, when he attempted to write it out and to prove its validity, he found it to be hopelessly vague or a self-contradiction.

### *Writing Aids Concentration*

One incidental advantage of the habit of writing out one's ideas is that it promotes concentration as almost no other practice does. As one who has written daily newspaper editorials or weekly magazine columns for many years, I can testify that nothing forces one to pull one's thoughts together more than deciding on a topic, sitting before the typewriter, feeding in a clean sheet of paper, and then trying to frame one's exact theme, title, and opening paragraph.

Francis Bacon summed it up with unsurpassable conciseness: "Reading maketh a full man, conference a ready man, and writing an exact man."

If the reader wants to know what the best and most stimulating notebooks and journals are like, I suggest, for a starting assortment: The *Meditations* of

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***Good ideas are elusive and must be captured in flight... jot down a good thought the moment after it lights up your mind.***

Marcus Aurelius, Pascal's *Pensées*, *The Heart of Emerson's Journals*, Samuel Butler's *Note-books*, and Charles Horton Cooley's *Life and the Student*. All of these, of course, can be sampled rather than read through; they are admirable bedside books.

#### How to Solve a Problem

In the first edition, I remarked that all thinking is problem-solving. My new book would contain a special chapter on "How to Solve a Problem."

It would begin, perhaps, by raising the problem: how to recognize a problem when you see it. The better informed, more intelligent, and more intellectually curious you are, the more problems you will become aware of. In his *Voyage of the Beagle*, Darwin describes how the savages, at one harbor in which the *Beagle* anchored, immensely admired the small boats in which his party landed, but paid no attention whatever to the big ship. They took it for granted, like a fact of nature. It was too far out of their experience.

Feebleminded barbarians, no doubt. But most of us civilized laymen daily switch on the lights, or turn on our television set, without the slightest curiosity regarding the cause of the miraculous result.

A question akin to this, which my chapter would raise, is "What *is* the problem?" Our modern social reformers are constantly preoccupied, for example, with the problem of poverty. But poverty is the original condition of man, from which he has sought to escape by the sweat of his brow, by work, production, and saving. It was when Adam Smith asked himself not what causes the poverty but what causes the *wealth* of nations that real progress on the problem began to be made. For centuries, in the same way, doctors took health for granted and assumed that the only problem is what causes disease. It was not until surgeons tried to transplant kidneys, hearts, and other organs that they became acutely troubled by the problem of what causes immunity. There is always the possibility of learning more by asking ourselves the opposite question. There are hundreds of books

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on *How to Play Chess*. Znosko-Borowsky created a mild sensation by writing one called *How Not to Play Chess*.

### *Rules for Discovery*

I suspect that my chapter on problem-solving would be heavily obligated to a little book by George Polya, first published in 1945, called *How to Solve It*.

Polya's book is devoted primarily to the problem of solving problems in mathematics; but it is applicable over the whole field of invention, discovery, and independent thinking.

"A great discovery," the author tells us in the preface, "solves a great problem but there is a grain of discovery in the solution of any problem. Your problem may be modest, but if it challenges your curiosity and brings into play your inventive faculties, and if you solve it by your own means, you may experience the tension and enjoy the triumph of discovery. Such experiences at a susceptible age may create a taste for mental work and leave their imprint on mind and character for a lifetime."

Polya has all sorts of instructive things to say about what questions to ask – "What is the unknown?" – about the uses of analogy, about "decomposing" and "recomposing" problems, about Descartes' rules for invention, about the indispensability of good symbols and good notation for mathematical thinking. He tells how, overnight or after a longer interval, our subconscious mind will often solve problems for us, but warns that "conscious effort and tension seem to be necessary to set the subconscious work going" – otherwise everything would be too easy.

Polya calls his whole book an effort to teach *Heuristic:* "The aim of heuristic is to study the methods and rules of discovery and invention. . . . The most famous attempts to build up a system of heuristic are due. to Descartes and to Leibnitz, both great mathematicians and philosophers."

Polya's own illustrations and application are confined entirely to mathematics, for which his own enthusiasm is contagious. The reader, he says, should at least try to find out whether he has a taste for mathematics, and he may find out that "a mathematics problem may be as much fun as a crossword puzzle, or that vigorous mental work may be an exercise as desirable as a fast game of tennis. Having tasted the pleasure in mathematics he will not forget it easily and then there is a good chance that mathematics will become something for him: a hobby, or a tool of his profession, or his profession, or a great ambition."

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***Conscious effort and tension seem to be necessary to set the subconscious work going.*** ***—Polya***

***Specialization, Perseverance, Analogy***

My new book would contain a chapter on "The Dilemma of Specialization." The dilemma is this. In the modern world knowledge has been growing so fast and so enormously, in almost every field, that the probabilities are immensely against anybody, no matter how innately clever, being able to make a contribution in any one field unless he devotes all his time to it for years. If he tries to be the Rounded Universal Man, like Leonardo da Vinci, or to take all knowledge for his province, like Francis Bacon, he is most likely to become a mere dilettante and dabbler. But if he becomes too specialized, he is apt to become narrow and lopsided, ignorant on every subject but his own, and perhaps dull and sterile even on that because he lacks perspective and vision and has missed the cross-fertilization of ideas that can come from knowing something of other subjects.

I do not know the way out of this dilemma, or the exact compromise, but I hope to find it by the time I write my new book.

My new book, like the present one, will have a chapter on concentration, but it is more likely to be called "Concentration and Perseverance," for it will put far more emphasis on patience, plodding, perspiration, pertinacity, determination, effort, *work* – on again and again returning to an obstinate problem until it is solved. Scientists talk much nowadays of "serendipity" – the faculty of making desirable discoveries by accident. An example often cited is how Sir Alexander Fleming discovered penicillin because one of his laboratory technicians had carelessly left the top off a dish in which a virulent infectious organism, staphylococcus, was growing; a number of fungi had floated into the open dish, overgrown the bacteria – and killed it. The accident led Fleming to his discovery. But these "accidents" only seem to bear fruit when they happen to alert indefatigable scientists who have already been working for years on a project. As Pasteur put it: "Chance favors the prepared mind."

In my new book I would treat *Analogy* less cavalierly than I did

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earlier in this one, and perhaps have a separate chapter with that title. I did mention analogy in my first edition as a constructive method of making discoveries, but then went on to talk almost exclusively about its dangers and pitfalls. A. Wolf, in his *Textbook of Logic* (1938), emphasizes its achievements:

"One need only think of the most important discoveries in the history of science, in order to realize the enormous value of analogy. Our conception of the solar system (the helio-centric theory) owes a great deal to the analogy of the miniature system of Jupiter and the Medicean satellites. Some of the most important discoveries in modern mathematics are due to the analogy, discovered by Descartes, between algebra and geometry. The wave-theory of sound was suggested by the observation of water-waves; and the undulatory theory of light was suggested by the analogous air-waves which transmit sound. The theory of natural selection by the struggle for existence was suggested to Darwin by his knowledge of the artificial selection by which breeders have produced the many varieties of domestic animals. And so forth."

Like the first edition of the present volume, my new book would contain chapters on "Subjects Worth Thinking About" and on "Books on Thinking."

### *Subjects Worth Thinking About*

But the former chapter, instead of containing a list of important but very miscellaneous problems, would call the reader's attention to some of the innumerable sciences or disciplines in which he could enjoyably and profitably interest himself — agriculture, astronomy, atomic physics, biology, building, chemistry, crystallography, electricty, engineering, fossils, gardening, geography, geology, mathematics, medicine, metallurgy, meteorology, minerology, pathology, physics, physiology, and zoology. These are all physical sciences. I name so many here because my first edition rather neglected them in its emphasis on social questions. But, of course, in my new book the reader would still be invited to consider the attractions of the social disciplines — political science, jurisprudence, economics, ethics, psychology, anthropology, or archeology.

In choosing subjects to think about or problems to solve, I must confess a personal preference for those that are useful. I admire disinterested curiosity and the achievements of "pure" science and "pure" research as much as anyone; but I cannot share the snobbery of those who seem able

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***I cannot share the snobbery of those who seem able to express their esteem of pure science only by disparaging its practical applications.***

to express their esteem of pure science only by disparaging its practical applications. Both are admirable; and they are mutually dependent. The partisans of pure science chronically talk as if there were only a one-way dependency, and as if inventors were men of a lower order than pure scientists. They never tire of reminding us how the inventions of Marconi in wireless telegraphy and de Forest in radio were dependent on the previous theoretical discoveries of Clerk Maxwell and Hertz. All very true. But how far would pure research have been able to go in a hundred fields if it had not been for the invention, say, of the microscope? Or, for that matter, of the printing press?

As Karl R. Popper has pointed out, in his *Poverty of Historicism* (1957), one need not espouse a narrow pragmatism in order to appreciate Kant's saying: "To yield to every whim of curiosity, and to allow our passion for inquiry to be restrained by nothing but the limits of our ability, this shows an eagerness of mind not unbecoming to *scholarship*. But it is *wisdom* that has the merit of selecting, from among the innumerable problems which present themselves, those whose solution is important to mankind."

### The Study of Economics

The reader of my new book would receive some guidance in how to take up a subject new to him, and there would be some specific illustrations. Suppose, for example, that he wanted to take up economics in a systematic way. He would be advised to begin with some short elementary text. An excellent one for the beginner today would be, say, *Essentials of Economics*, a book of only one-hundred pages by Faustino Ballvé (Irvington-on-Hudson, N. Y.: Foundation for Economic Education). A collection of essays, *Planning for Freedom*, by Ludwig von Mises, is less systematic but enormously stimulating. (I would be less than mercenary if I failed to mention here also my own *Economics in One Lesson*, available both in hard-cover by Harper & Row and in paperback by Macfadden-Bartell.)

The next step would be to read a book of intermediate length. One

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of the best is *A Humane Economy* by the late Wilhelm Roepke (Regnery).

The student would now be ready to tackle one of the most comprehensive and advanced books on the subject, of which I will mention only three. *Human Action: A Treatise on Economics* by Ludwig von Mises (Regnery, 907 pages) extends the logical unity and precision of economics beyond any other work. Some readers seem to find this excessively difficult. For these I can strongly recommend *Man, Economy, and State,* by Murray N. Rothbard (D. Van Nostrand, two volumes, 987 pages) which is equally comprehensive, and along Misesian lines, but in which the reader may find the arrangement and exposition easier to follow. Finally, I would include in this triad an older book, Philip Wicksteed's *The Common Sense of Political Economy* (1910, new edition 1933, two volumes, 871 pages), as remarkable for the ease and lucidity of its style as for the penetration and power of its reasoning.

When the reader has finished even one of the books in this advanced triad, perhaps after a couple of introductory volumes, he will be prepared to choose his own further reading in economics, and may browse among the great writers and thinkers who created the science – Hume, Adam Smith, Ricardo, Mill, Jevons, Menger, Boehm-Bawerk, Wicksell, Marshall, John Bates Clark – an enviable feast. Adam Smith's *Wealth of Nations,* though published in 1776, can still be ardently recommended no less for its literary seductiveness than for the brilliant light it still can throw even on the economic life of today.

### *General Rules for Exploring Any New or Strange Subject*

Of course, my book could only include such specific recommendations on one or two subjects. For others there would have to be general rules. One would be to ask an expert in the subject. Another would be to consult the article on the subject in an encyclopedia and to see whether that included, as it ought to, a good list of references. A third rule would be to consult such a book as *Good Reading,* a paperback published by The New American Library. This is a volume sponsored by the College English Association and prepared by the Committee on College Reading. I happen to have the nineteenth printing which came out in 1964, but revisions have been appearing every year or two. The volume lists selected books on every conceivable subject – history, fiction, poetry, drama, biography, essays, philosophy, religion, and

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all the leading arts and sciences. There is also an instructive list of "100 Significant Books."

One last general piece of advice. No practice excels that of browsing along a library shelf containing books on the subject that has awakened your interest, and sampling them.

If I may be permitted a personal note, it seems to me, looking back, that the hours of purest happiness in my own youth were spent in just this way. I would avidly sample one book after another, and when the bell rang, and the library closed for the night, and I was forced to leave, I would leave in a state of mental intoxication, with my new-found knowledge and ideas whirling in my head. I would speculate eagerly on what solutions the authors I had read had come to in the passages I hadn't had time to finish. I think now that these unpremeditated efforts to anticipate an author's conclusions stimulated my thinking far more than any continuous uninterrupted reading would have done. In fact, when I came back to one of these same books the next evening, I most often felt let down. The night before, the author had seemed on the verge of some marvelous breakthrough, opening new vistas to the soul, and now he seemed to fizzle out in a truism.

### Books on Thinking

The final chapter in my new book, like the final chapter in the first edition of this one, would be about "Books on Thinking."

My new references would supplement, rather than displace, those in my first edition. For example, I cited there only two "classics" on the art of thinking – John Locke's *Conduct of the Understanding,* and Arthur Schopenhauer's *Thinking for Oneself.* I should also have included the three classics mentioned in my present preface: Bacon's *Novum Organum,* Descartes' *Rules for the Direction of the Mind,* and Spinoza's *Improvement of the Understanding.*

My new bibliography would of course also include a handful of good books written specifically on the art of thinking since the original edition of *Thinking as a Science* appeared. One of these would surely be *The Art of Thought,* by Graham Wallace (1926). Another would be *Thinking to Some Purpose,* by the late British logician L. Susan Stebbing. Her chief emphasis is on how to detect illogicalities in other people's thinking and how to avoid them in our own.

In addition, my new bibliography would refer the reader to passages, paragraphs, and even single sentences, widely scattered through the works of many au-

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thors, that throw light on the art of thinking. Some of these can be found in the biographies or autobiographies of great thinkers. My first edition cited material of this nature from the autobiographies of John Stuart Mill and Herbert Spencer. But there are illuminating passages in many writers less well known.

I quote here a few lines, for example, from Charles Horton Cooley's admirable notebook, *Life and the Student* (1927):

"Let our struggle be with facts, with life, rather than with other writers. We cannot have the spirit of truth and the spirit of controversy at the same time.

"A writer whose aim is to be unlike others is liable to a subservience of contradiction. That is, he after all gets his cue from them, takes the other end of the same rope. Originality raises new questions."

Though it starts apparently in contradiction, the advice of Morris R. Cohen in the preface to his *Reason and Nature* (1931) reinforces that of Cooley:

"The philosopher whose primary interest is to attain as much truth as possible must put aside as a snare the effort at originality. Indeed, it seems to me that the modern penchant for novelty in philosophy is symptomatic of restlessness or low intellectual vitality.... The principle of polarity calls attention to the fact that the traditional dilemmas, on which people have for a long time taken opposite stands, generally rest on difficulties rather than real contradictions, and that positive gains in philosophy can be made not by simply trying to prove that one side or the other is the truth, but by trying to get at the difficulty and determining in what respect and to what extent each side is justified. This may deprive our results of sweep and popular glamour, but will achieve the more permanent satisfaction of truth."

### Lessons in Logic

The art of thinking, like engineering or medicine, is based on several distinct sciences. One of these is psychology. I referred in the first edition of this book to John Dewey's *How We Think*, which is still useful. But great experimental as well as theoretical progress has been made since Dewey's book was published. The reader could bring himself abreast of this by consulting the article on *Thinking and Problem Solving, Psychology of* in the 1965 edition of the *Encyclopedia Britannica*. The article itself includes an extensive list of books for further reading.

Logic, the study of the general conditions of valid inference, is of

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***We cannot have the spirit of truth and the spirit of controversy at the same time.*** ***—Cooley***

course the chief established science on which the art of thinking must be based. My recommendation for initial reading in my first edition was Stanley Jevons' *Elementary Lessons in Logic.* Because Jevons was an excellent writer as well as a first-rate thinker, this can still be read with pleasure and profit. But today I would prefer to recommend as an introductory volume A. Wolf's *Textbook of Logic* (first edition 1930, but often republished). More advanced, but still not too difficult, is L. Susan Stebbing's *Modern Introduction to Logic* (1940). Still more advanced, longer, and more difficult is *An Introduction to Logic and Scientific Method,* by Morris R. Cohen and Ernest Nagel (1934).

Scientific method is closely connected with logic. In fact, it is usual for modern books on logic (and this is true of the three just mentioned – the last explicitly in its title) to treat traditional logic in the first half of the book as "formal" or "deductive" logic, and then to devote the second half to "inductive" logic and to "scientific method" in general. This second subject includes discussions of such subjects as circumstantial evidence, the evolutionary and comparative methods, the simpler inductive methods (Mill's "five canons"), the statistical method, the deductive-inductive method, probability, laws of nature, scientific explanation, and so on. Long established as a standard work in this field is F. W. Westaway's *Scientific Method* (1919), but the literature is now very extensive.

A brilliant and penetrating book, for those who have the intellectual background, capacity, and ambition to read it, is *The Logic of Scientific Discovery* by Karl R. Popper (1961 edition).

#### Digression on Mathematics

It was one of the shortcomings of my first edition that it did not contain any explicit discussion of the enormously important field of mathematics. Yet at least an elementary knowledge of mathematics is essential for solving most of our daily practical problems as well as for most scientific thinking. We need arithmetic to buy and sell, to count our change, to read the time or the temperature, or to perform a hundred

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other daily operations. Mathematics has been called the "queen" and even the "mother" of sciences, because every science has its mathematical aspect. The accelerative development of mathematics in the last century has been both cause and consequence of the tremendous progress in the same period in the whole realm of the sciences, physical and social.

And — what was strangely not recognized until the last century — there is an inextricable connection between logic and mathematics. Mathematics may be called the quantification of logic. Mathematical logicians consider it a branch of logic. A formidable literature has grown up in the last few decades on "mathematical logic," "the algebra of logic," and "symbolic logic."

I do not mean to discourage or frighten the nonmathematical reader at this point by any implication that unless he masters higher mathematics and symbolic logic he cannot hope to contribute anything to science, philosophy, or the higher realms of thought. Great contributions to science and other knowledge will be made in the future, as they have been made in the past, by persons innocent of mathematics beyond simple arithmetic. But I do want to suggest that, other things being equal, the more you know of mathematics the more you will be likely to accomplish in science or original thought.

And mathematics can be fun. Few things can give greater enjoyment than mathematical problems, in fact, to those who relish mental exercise for its own sake.

The reader may be, like myself, one who grew up with a deep aversion to mathematics. This was chiefly, I am now convinced, because of the way it was then taught. Algebra was thrown at most of us who are now over forty simply as something that had to be learned if we didn't want to flunk. I never remember any teacher telling me anything about the engrossing history of algebra, or even explaining why algebra was necessary in solving any problem except the artificial ones that were specially invented for the textbooks. The course in algebra seemed to me mainly a malicious contrivance to cut down the time I could give to handball.

But now, I can assure any reader who doesn't know, all is changed. There are now so many fascinating introductions to mathematics (at least for adults) that it seems almost invidious to name only a handful. For a short introduction covering the whole field, I would especially recommend David Bergamini's *Mathematics* (1963) in the admirable

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Life Science Library series. *Mathematician's Delight* by W. W. Sawyer (1943) is a charming introduction available in paperback. Two single volumes that teach the actual operations of the conventional part of the field are *Mathematics for the Practical Man* by George Howe (1957), and Lancelot Hogben's best-selling *Mathematics for the Million* (1937) – if you don't mind its belligerent Marxism. There is an excellent five-volume set on *Mathematics for Self-Study* (1931, 1962) by J. E. Thompson, covering in separate volumes arithmetic, algebra, geometry, trigonometry, and calculus. Finally there are the magnificent four volumes of *The World of Mathematics* edited by James R. Newman (1956).

#### *Science, Philosophy, and Logic*

I am still talking, the reader will remember, about studies that are directly likely to help him in the art of thinking – though the discussion inevitably splashes over into the domain of the chapter on "Subjects Worth Thinking About."

To continue with aids to the art of thinking: The reader will get both knowledge and stimulation from reading histories of science, lives of great scientists and inventors and discussions of their methods; histories of engineering, and histories of inventions and discoveries. Again I can mention only a few books. Two more from the handsomely illustrated Life Science Library series: *The Engineer*, by C. C. Furnas, Joe McCarthy and others (1966), and *The Scientist*, by Henry Margenau, David Bergamini, and the editors of *Life* (1964). The latter book will introduce the reader to a wide variety of sciences. In the realm of technology the reader may consult anything from the five-volume *History of Technology* (1954-58), edited by C. Singer to the *Popular History of American Invention* (1924), edited by W. Kaempffert.

Of course I should include philosophy also among the subjects whose study would contribute directly to the stimulation and improvement of one's thinking. But my list of recommendations has already grown so long that I shall here mention only two. The first is Bertrand Russell's brilliant *History of Western Philosophy* (1945). The second is *An Introduction to Philosophical Analysis* (second edition, 1967), by John Hospers. This text will bring the reader abreast of the kind of problems that professional philosophers now discuss.

At this point some reader may ask, earnestly or skeptically: But if I do some or all of this reading, will it really make me a better

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thinker than if I devote my leisure wholly to detective stories or golf? To this I can confidently reply: Yes. But to the further question: *How much* will it help me?, I cannot reply with any confidence at all. The answer depends on the native intelligence of the individual reader, the nature of his gifts and interests, and a score of other factors.

### *Improving the Prospects*

Is it really necessary to study formal logic, for example? Tristram Shandy, Lawrence Sterne's hero, commenting on the gap between his father's argumentative powers and his ignorance of formal logic, says: "It was a matter of just wonder with my worthy tutor, and two or three fellows of that learned society, that a man who knew not so much as the names of his tools, should be able to work after that fashion with them." In 1685, in the great hall of Dublin University, the young Jonathan Swift, having failed once before to take his bachelor's degree on account of his ignorance of logic, came up again without having condescended to read logic. He was asked how he could reason well without rules, and replied that he did reason pretty well without them. Reluctantly, though as the outcome proves, justifiably, his examiners gave him the degree. On the reverse side of the coin we may cite examples of even great professional logicians, like John Stuart Mill, sometimes falling into logical howlers.

The only reply I can think of to these examples is that though ignorance of logic may not prevent correct reasoning, or knowledge of it guarantee correct thinking, that knowledge nonetheless helps. The probability is that in the long run a man who has studied formal logic will reason better, and make fewer errors, than if he had not. Remembering the technical names and descriptions of the more common fallacies, for example, will help him to detect such fallacies in the reasoning of others and avoid them in his own.

I have much less doubt about the usefulness of mathematics. True, even a prolonged study of higher mathematics will not make a man into an original or even effective thinker if he lacks the innate qualities. But a study of mathematics is of great importance in training a man to *think mathematically* about a problem or a subject.

On the negative side the importance of mathematical study is overwhelming. Without a knowledge of at least elementary arithmetic none of us would be competent to manage his daily affairs.

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***In the long run a man who has studied formal logic will reason better, and make fewer errors, than if he had not.***

Without a knowledge of double-entry bookkeeping and cost accounting, a business firm would never know just how much money it was making or losing. And without a knowledge of higher mathematics, few modern physical scientists could hope to make contributions to their subjects, or even understand what had already been discovered. Morris R. Cohen tells us that in dealing with experimental physics, the lack of advanced mathematical knowledge discomforted the acute and powerful mind of Hobbes.

Even if the case for the usefulness of mathematics were not so overwhelming, its study could still be infinitely rewarding. In a famous fifteen-page essay, "The Study of Mathematics," included in his *Mysticism and Logic* (1918), Bertrand Russell writes:

"Mathematics, rightly viewed, possesses not only truth, but supreme beauty . . . sublimely pure, and capable of a stern perfection such as only the greatest art can show. . . .

"For the health of the moral life, for ennobling the tone of an age or a nation, the austerer virtues have a strange power, exceeding the power of those not informed and purified by thought. Of these austerer virtues the love of truth is the chief, and in mathematics, more than elsewhere, the love of truth may find encouragement for waning faith. Every great study is not only an end in itself, but also a means of creating and sustaining a lofty habit of mind; and this purpose should be kept always in view throughout the teaching and learning of mathematics."

### *The Joy of Thinking*

But I ought not to try to proselytize for any one subject, among the hundreds, indeed (as encyclopedias and great libraries remind us) the thousands, that compete for the interest of the inquiring mind. Some of the world's most brilliant intellects have had no gift for mathematics. Most of us, moreover, have neither the surplus time nor energy to divert from the interests that already preoccupy our attention. And most of us, also, will feel less frustrated if we devote ourselves to less abstract and abstruse subjects

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which are nonetheless rewarding and absorbing. Not everyone can be a Newton or a Darwin, but everyone, by a little effort and persistence, can improve his intellectual attainments and satisfactions — and his enjoyment of life.

I would like to end this epilogue where I began, and to repeat that if I were writing a new book on the art of thinking I would emphasize, as I failed to do in my first edition, that no man can hope to do original work or even profitable thinking in any science or branch of knowledge until he has gone to the trouble to learn *what has already been discovered* in that branch of knowledge. He must know *the previous state of the question.* Then he will see whether he can make any contribution of his own.

When the great Isaac Newton was asked how he had been able to make such tremendous contributions to human knowledge and thought, and to see so much farther than other men, he answered modestly: "I stood on the shoulders of giants." In other words, he was able to build on what his predecessors had discovered.

We who live today are in one respect in a more enviable position than any other generation in history. We stand on the shoulders of giants, like Newton and his successors, who stood on the shoulders of other giants before them. A thousand professional mathematicians today, though they have nothing approaching his genius, know more mathematics than Newton, who invented the calculus. And they know it because Newton, Leibnitz, the Bernoullis, Euler, Lagrange, Gauss, Riemann, Hamilton, and a hundred lesser figures have taught them. So an intelligent college student today is in a position to learn more about calculus than Newton, more about economics than Adam Smith, more about evolution than Darwin.

The present generation has been privileged beyond all others in acquiring this great intellectual heritage. It is a cardinal sin for any individual to neglect to acquire at least some small part of it for himself. It is more than a sin; it is a folly. It is a failure to take advantage of one of the greatest sources of human enjoyment.

For we may say of thought in general what Tarrasch said of chess: Thinking, like Love, like Music, has the power to make men happy.

The way to this happiness is what I have tried to show in this book.

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# Consumers' Capitalism & The Immutable Laws of Economics

AL LAX'S *Consumers' Capitalism and the Immutable Laws of Economics* (Charles Hallberg & Co., $5.95) is an adventure in shirt-sleeve economics. What it tries to do — and succeeds very well in accomplishing — is to put the concept of marginal utility (a rather forbidding phrase) into easily comprehensible terms. This is "Austrian economics" in homespun, or Menger-for-the-Masses, which eschews all talk about "monopsony," or "oligopoly," or any of the manifold verbal barbarisms that the professional economists use as shorthand. It is the work of a good simplifier who knows how to be clear without becoming superficial.

If it is Menger-for-the-Masses, an exposition of how the subjective desires of individuals result in personal lists of preferences regarding the utility of any and all the items that are offered in trade, it is also Mises-for-the-Multitudes. Like Ludwig von Mises, Mr. Lax is struck by the fact that "planning" on the Soviet model would be impossible if no free market system existed anywhere in the world to establish the proper relationship between hard metallic money and goods. The utter dependence of socialist "planners" on what happens in an "unplanned" market is a subject for cosmic irony. Nobody knows how to set prices that will "clear the market" unless there is, somewhere in the world, a free system which will let individuals judge what they want in relation to what they have to pay for it. Socialism and "bureau-

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cratic planning" come to grief on the measurement problem: they need a "market" to give them signals about the point where the weakest desire is willing to fork up something for the last item that a producer is able to put up for sale without going broke.

### *Millions of Planners*

The dependence of "planners" on evidence gathered from "unplanned" systems leads Mr. Lax to transvalue the usual terms of discourse. It is not really true, he says, that "invisible hand" capitalism is an "unplanned" affair. Under unfettered capitalism it is the individual consumer who does the "planning." He tells the producer what is wanted, and in what proportions. It may seem strange that a city like New York, with eight million people, gets its morning coffee without any "conning tower" consideration of how many coffee trees should be planted in Colombia and Brazil, or how many coffee roasting establishments should be financed, or how many ships should be dispatched to Sao Paulo. Actually, however, a couple of million housewives, each planning for an individual family, add up to a total "plan" for coffee delivery in the New York marketplace. No bureaucrat could do as well as the "invisible hand" that takes its orders from two million "planning" housewives.

Under "consumers' capitalism," energy goes to where it is needed most. In countries where "bureaucratic capitalism (or state socialism) reign more or less supreme, the disposal of energy must be allotted in accordance with the prejudices and the guesses of the commissars. In the "mixed economies," where there is some freedom and some of what might be called "planning-by-guess," energy moves into action in distorted ways. Most of the nations of the world have "conglomerate" systems. But the ones that do the least "planning-by-guess" have the highest standards of living, other things (such as soil endowments, the availability of water, and so on) being equal. Even in places like Japan, where land is at a premium and most raw materials must be brought in from overseas, freedom can create a prosperity that is the envy of bureaucratic economies that are better endowed with such things as coal and iron in the ground and wider horizons for the growing of corn and wheat and cattle.

### *Resort to the Rule of Force*

Since bureaucrats resist letting the "market" decide, they are thrown back upon the rule of

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force. The "planners" have to make use of the secret police and the torture chamber to push production into the channels they have arbitrarily chosen. The "bureaucratic capitalist" nations become "giant tribes," in Mr. Lax's appropriate description. They trade with each other by barter ("if at all"), and every competing tribe is suspect. And, to keep people from emigrating to places where individuals do their own "planning," the "giant tribes" ring themselves with land mines and ugly walls, "with police dogs patrolling the exits."

Periodically, in the "bureaucratic capitalist" systems, the inefficiency becomes so notorious that the "planners" feel they must experiment with an "as if" market system. So we have the spectacle of a Yevsy Liberman in Soviet Russia saying publicly that the communist system must find some way of reintroducing the concept of profit. Without profit, so Liberman told the commissars, there was no way of gauging efficiency. But how do you create the atmosphere for a profit system without such things as individual ownership, access to a free capital market, and competition for raw material and labor? Liberman has never been able to answer this in a country which insists on bureaucratic allocation of capital and access to raw material sources. Since the Russians have no way of objectively determining optimum shoe production, for example, they don't know when to stop making shoes and start making something else. Their only reference points for calculation come from the world market for such things as leather, the material needed for shoe lasts, and so on. Without the capitalistic West to copy, the Soviet "planners" would, as Mr. Lax expresses it, "be helplessly lost in a maze with no beginning nor end."

### *Freedom or Coercion*

Mr. Lax denies that one can have "the best of both worlds" by saddling a free system with "bureaucratic planning," or "interventionism." You cannot "plan" without taking resources from those who, if the market were left to judge, would place them where they could be used in the most efficient manner. Laws and decrees cannot create prosperity. If a minimum wage will supposedly give everyone a minimum subsistence standard, why not go the whole hog and make everybody rich by setting the minimum wage at $25 an hour? The answer is that all any minimum can do is to exclude from the labor market any person

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who can't make money for an employer at the government-dictated wage rate. The minimum wage "intervention" must approximate a good guess at the natural market price for unskilled labor if it is not to result in unemployed men and a reduced amount of goods for sale. But if the minimum wage does approximate a good guess at what the natural price for labor would be without any political ukase, it is obvious that no intervention was necessary in the first place.

Mr. Lax's treatment of tariffs is particularly refreshing. The standard argument for tariffs is that they are needed to protect Americans from the low-wage competition of nasty foreigners. But the attempt to keep workers and capital employed in naturally inefficient industries actually restricts the energy that might be applied in places where a nation has a real comparative advantage. Says Mr. Lax, "in spite of the belief that tariffs protect Americans from cheap foreign labor, tariffs (in the long run) inhibit the shift of workers into higher-paying jobs." The U.S., so Mr. Lax argues, should forget about competing with Japan or Hong Kong in making artificial plastic flowers or inexpensive clothing and put its bet on airplanes and electronic computer systems, where it has a great advantage over the so-called "developing" nations.

The "planners" world always results in "problems," such as the "farm problem," or the "housing problem." Where the economy remains free, there is no such thing as an "automobile problem," or a "shoe problem." The attempt to "plan" production allocates capital (seized by taxation) to the creation, of surpluses which, by definition, are what nobody wants. The surpluses, says Mr. Lax, "are the twentieth century pyramids."

Mr. Lax's book is edited by Edmund A. Opitz, who also wrote the Introduction. The Preface is contributed by Leonard E. Read.

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# Consumers' Capitalism

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By Al Lax

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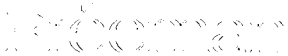

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